Studies in the Eighteenth Century Background of Hume's Empiricism

MARY SHAW KUYPERS

B
1498
K97
1930

THE UNIVERSITY OF MINNESOTA PRESS
MINNEAPOLIS

Library

St. Olaf College

Northfield, Minn.

Studies in the Eighteenth Century Background of Hume's Empiricism

By
MARY SHAW KUYPERS
Instructor in Orientation
University of Minnesota

MINNEAPOLIS
THE UNIVERSITY OF MINNESOTA PRESS
1930

B148
.K91
1930

COPYRIGHT, 1930, BY THE
UNIVERSITY OF MINNESOTA

PRINTED IN THE U. S. A.

17 Feb. 1947 2.50

TO
Wendell T. Bush

69127

PREFACE

The following studies lay no claim to completeness; they deal with only a part of Hume's immediate background, but a part which has received little attention. Standard criticisms of Hume's philosophy have treated it chiefly in its relation to the English epistemological tradition. Yet merely to classify Hume as a phenomenalist is to tell very little about his meaning for his own time or any other.

Recently there has been a different emphasis. Several accounts of the rise of modern scientific conceptions and of eighteenth century thought, in particular, have done a great deal to make clear the intellectual setting of Hume's work. Kemp Smith's[1] conception of the naturalism of Hume gave a new and valuable orientation, and, in general, Hume's empiricism has come to seem more important than his phenomenalism. Other studies of modern philosophy have shown that philosophical development was strongly influenced by conceptions drawn from the science of Kepler, Galileo, Descartes, and Newton.[2] The results of that influence have been indicated in the case of Berkeley,[3] while Hume's reactions to Newtonian conceptions have been suggested.[4] There has been, however, no detailed study of the relevance which Hume's philosophy may have had to the problems which science had raised.

I have, consequently, limited the discussion in the first group of these studies to the historic development which brought the problem of causation to the foreground both

[1] Norman Kemp Smith, "The Naturalism of Hume," in *Mind,* XXX: 149-173, 335-347 (1905).

[2] Edwin A. Burtt, *The Metaphysical Foundations of Modern Physical Science.*

[3] Frederick J. E. Woodbridge, "Berkeley's Realism," in *Studies in the History of Ideas,* edited by the Department of Philosophy of Columbia University, Vol. I.

[4] Sterling P. Lamprecht, "Empiricism and Epistemology in David Hume," in *Studies in the History of Ideas,* Vol. II.

in science itself and in the philosophic interpretations placed upon it. Where other conceptions, such as those of space and time, are discussed, their treatment is incidental and is not meant to be complete.

The question of the theological background of Hume's scepticism is an interesting one, but it has received such voluminous treatment in standard works that I have not dealt with its general aspects.[5] The theological discussions of the eighteenth century, however, had a close relation to scientific conceptions and they are treated here from that point of view.

In the second group of studies I have traced some of the tendencies in eighteenth century thinking on social questions, which, to an extent, paralleled scientific development. I have suggested that Hume took a position in ethics and politics analogous to that which he occupied in metaphysics. Similar problems of method had arisen in the two fields, and in both Hume attempted to establish empiricism. The first book of the *Treatise* is thus a real introduction to the book on morals, just as Hume said it was.

It is hoped that the following discussion may contribute some suggestions for other treatments of Hume's place in his century. I have attempted to offer them with that degree of "doubt, and caution, and modesty, which, in all kinds of scrutiny and decision, ought forever to accompany a just reasoner."

I have received valuable suggestions from Professor John Dewey, Professor Frederick J. E. Woodbridge, and Professor Wendell T. Bush. I am especially indebted to Professor Frederick Barry for criticism of my discussion of Newton and to Professor John Herman Randall, Jr., for general criticism and advice.

MARY SHAW KUYPERS

[5] The most interesting recent contribution in this field has been made by Charles W. Hendel, Jr., in *Studies in the Philosophy of David Hume.*

TABLE OF CONTENTS

PART I

CHAPTER		PAGE
I.	INTRODUCTION	3
	The "New Philosophy" of Newton in the Eighteenth Century	3
	Hume's Introduction to Philosophy. His Associates in Edinburgh	9
II.	INTERPRETATIONS OF NEWTONIAN SCIENCE IN THE EIGHTEENTH CENTURY	14
	Newtonian Concepts Interpreted as Metaphysical Principles	14
	Interpretations of Space and Time	19
	Force: Vis Inertiae; Vis Gravitationis	20
	Rationalistic Interpretations of the Concept of Force	37
	Critics of Rationalism	41
III.	REVERBERATIONS OF THE NEW SCIENCE IN PHILOSOPHY	45
	John Locke	45
	George Berkeley	53

PART II

IV.	HUME'S EMPIRICISM IN RELATION TO CONTEMPORARY SCIENCE AND PHILOSOPHY	64
	Hume's Knowledge of the Current Discussions of Science	64
	Hume's Emphasis on the Causal Principle	72
	The Objective Causal Order	74
	The Influence of Hume's Criticism	81
	Sources of Hume's Scepticism	82

CHAPTER PAGE

V. EMPIRICISM IN MORALS 88
The Background of Hume's Ethics 88
Hume's Attempt to Introduce the Experimental Method into Moral Subjects 97

VI. EMPIRICISM IN POLITICS 106
The State of Political Philosophy during the First Half of the Eighteenth Century 106
Hume's Practical Scepticism in Answer to Bolingbroke 111
Hume's Analysis of Basic Political Concepts: The Empirical Principle of Utility 114

VII. HUME'S HISTORICAL WRITING 120
Historical Writing in England before Hume 120
Hume's Treatment of the Whig and the Tory Interpretations of English History 121
The Effect of Contemporary Political Events upon Hume's Views: The Theoretic Basis of His Conservatism 128
Conclusion 133
BIBLIOGRAPHY 135

STUDIES IN THE EIGHTEENTH CENTURY BACKGROUND OF HUME'S EMPIRICISM

CHAPTER I

INTRODUCTION

A. The "New Philosophy" of Newton in the Eighteenth Century

When Hume left the University of Edinburgh to devote himself, as he said, to the study of "philosophy and the polite authors," the reigning conceptions of the universe were those which had been drawn from the "new philosophy" of Newton. The *Principia* had been published more than forty years before, and in the intervening period its main ideas had entered into the popular imagination much as evolution was to do in the nineteenth century. The specific principle of gravitation, it is true, did not lend itself to such a variety of uses as does evolution. Yet, although it could not be utilized easily as a type of scientific explanation in other than the fields of physics and astronomy, it did at least furnish analogies. Hume and others spoke of the association of ideas as a kind of gravitation, and Desaguliers wrote of the Newtonian system as the best model for government.[1]

However, it was the general mechanistic conception of the universe, of which the principle of gravitation was the first exact general expression, which had taken thorough possession of popular thought. That conception had developed, of course, before the work of Newton, but his influence served to establish it as the one tenable position and his mathematical principles, to give it full corroboration.

The dualism of primary and secondary qualities was commonly held to be the essential feature of the new metaphysics. On one side was the real physical universe, wholly subject to mathematical treatment; on the other, the world

[1] John T. Desaguliers, *The Newtonian System of the World, the Best Model of Government: an Allegorical Poem.*

of immediate perception and of values, of sights and sounds, colors and odors, and of ends and purposes. Although the latter had their status "in the mind," they were allowed to have only a dubious validity. All evidence of sense was, in a measure, deceptive; all human concerns were, to an extent, illusory. The difficulties to which this dualism gave rise were the chief subjects of philosophic discussion throughout the eighteenth century; the dualism itself was scarcely questioned.[2] "The fundamental principle of that philosophy [the modern]," says Hume, "is the opinion concerning colours, sounds, tastes, smells, heat and cold; which it asserts to be nothing but impressions in the mind, derived from the operations of external objects, and without any resemblance to the qualities of the objects."[3]

This accepted "opinion" was repeatedly expressed in popular writings as well as in theoretical treatises. Edward Young used it to reclaim the infidel of *Night Thoughts*.

> Our senses, as our reason, are divine.
> But for the magic organ's powerful charm,
> Earth were a rude, uncolored chaos still.
> Objects are but the occasion; ours th' exploit;
> Ours is the cloth, the pencil and the paint,
> Which nature's admirable picture draws;
> And beautifies creation's ample dome.[4]

Cudworth, the Cambridge Platonist, attributed the mechanical philosophy to Moses and succeeded in making it serve the purposes of religious orthodoxy. Sensory qualities, he believed to be

> a most wise contrivance thus to beautify and adorn the visible and material world, to add luster or embellishment to it, that it might have charms, and relishes and allurements in it, to gratify our appetites; whereas otherwise really in itself, the whole corporeal world in its naked hue is nothing else but a heap of dust, or atoms, of several figures and magnitudes variously agitated up and down.[5]

---

[2] It was questioned by Berkeley and Hume but their criticism had little effect.

[3] David Hume, *A Treatise of Human Nature and Dialogues concerning Natural Religion,* Green and Grose ed., I, 511.

[4] Edward Young, *Night Thoughts.*

[5] Ralph Cudworth, *A Treatise concerning Eternal and Immutable Morality,* pp. 295-296.

There was general agreement with John Locke's observation "that the ideas of primary qualities of body are resemblances of them, and their patterns do really exist in the bodies themselves; but the ideas, produced in us by these secondary qualities, have no resemblances of them at all."[6] It was natural that John Locke should be cited in support of the new science, for in England he was its most philosophical exponent. His *Essay* reflected the general view, including its ambiguities and contradictions. Newton and Locke were recognized as coordinate authorities. Locke's philosophy was, in many respects, an interpretation of scientific results and such interpretations became very common. Theologians, in particular, were concerned with the problem of assimilating what they took to be the scientific view of the universe. The years during which Hume was first thinking of the problems of philosophy fell in this period of assimilation and interpretation.

From 1704 to 1729, Samuel Clarke was the "reigning metaphysician" in England, and this fact in itself furnishes a clue to the development which was taking place. For Clarke had constituted himself the theological lieutenant of Newton and the period was one in which theological lieutenants of science were in demand. Discussions of religion consisted very largely of attacks upon, and apologies for, tenets which in earlier periods were a part of the accepted conceptions of philosophy. The deistic controversy gave evidence of a widely disseminated state of mind. Both in and out of the church, religious beliefs were treated less as data to be harmonized and expounded than as hypotheses to be proved. The existence of God was no longer a premise but a conclusion. Apologetics had virtually usurped the place of theology.[7]

---

[6] John Locke, *Essay concerning the Human Understanding,* Fraser ed., Vol. I, Bk. II, chap. viii, sec. 15, p. 173.

[7] I cannot refer in detail to the literature of deism, but aside from the original source material the following treatments are useful:
John Leland, *A View of the Principal Deistical Writers That Have Appeared in England in the Last and Present Century.*
Leslie Stephen, *History of English Thought in the Eighteenth Century.*

This rationalizing tendency in theology was accompanied by a new interest in ethics. The increasingly secular character of life was partially responsible for both. Theology and theological ethics were equally open to attack from the secularly minded, and apologists were driven to use the same method in each case, the method of rationalism. Natural religion tended to resolve itself into a system of moral maxims with supernatural rewards and penalties attached.

A survey of the philosophical works published during the years preceding the appearance of Hume's *Treatise* shows in a striking way how thoroughly philosophy was identified with theology and with ethics.[8] We shall note later some of the particulars in which scientific conceptions were linked with theological and moral ones. But we may observe now that in their attempts to prove a deity and the unalterable obligations of morality, both deists and Christian apologists were prone to base their arguments on what they took to be the facts accepted by science and philosophy. Collins, the deist, Clarke, and Bentley are outstanding examples. It was natural that they should wish to make use of conclusions which nearly everyone supposed had been demon-

---

Mark Pattison, "Tendencies of Religious Thought in England from 1688 to 1750," in his *Essays and Reviews.*

John Tulloch, *Rational Theology and Christian Philosophy in the Seventeenth Century.*

[8] In Hume's own lifetime up to the publication of the *Treatise* the following prominent works appeared:

Bernard Mandeville, *Fable of the Bees,* 1714.

Anthony Collins, *Philosophical Inquiry concerning Human Liberty and Necessity,* 1715.

Samuel Clarke, *A Collection of Papers Which Passed between the Late Learned Mr. Leibniz and Dr. Clarke in the Years 1715 and 1716, Relating to the Principles of Natural Philosophy and Religion,* London, 1717.

John Toland, *Pantheisticon,* 1720.

William Wollaston, *Religion of Nature Delineated,* 1724.

Francis Hutcheson, *Ideas of Beauty and Virtue,* 1725; also *Conduct of the Passions and Affections,* 1728.

Matthew Tindal, *Christianity as Old as Creation,* 1730.

George Berkeley, *Alciphron,* 1732.

Joseph Butler, *The Analogy of Religion,* 1736.

This does not include a host of books bearing directly on the deistic controversy.

strated beyond the possibility of doubt. For the general reader the name of Newton could lend stability to any argument. Not all of the defenders of religion, however, found the reigning natural philosophy a bulwark against their opponents. Berkeley and the Hutchinsonians[9] were notable for their attacks upon the received conceptions, while Watts and Browne found that science led to scepticism from which there was no escape except by the way of faith.[10] These two trends of thought, the scientific and the theological, largely occupied the minds of those who aspired to philosophy, so that there could scarcely be said to be an independent philosophical development; certainly the peculiar form that philosophy took was conditioned by the conjunction of science and theology.

It may be well to ask here to what extent Cartesianism was influential in England after the development which followed Newton. It is safe to say that by Hume's time the Cartesian physics was quite thoroughly discredited in the minds of English scientists. As we shall note later,[11] it was the common opinion that the a priori method of Descartes had reversed the proper order of investigation and that Newton had shown the only true way to valid scientific results. The Newtonian system at first made its way very slowly in the British universities,[12] but once accepted, it held almost absolute sway. The conflict between the continental followers of Descartes and the British Newtonians, however, was still alive as late as 1748 when the editor of Colin

---

[9] Hutchinson was the leader of a small group at Oxford and elsewhere who opposed materialistic metaphysics which they believed was based upon a mistaken interpretation of Newtonian physics. An account of the controversy is given in *Memoirs of the Life, Studies, and Writings of the Right Reverend George Horne,* by William Jones.

[10] Cf. *infra,* chap. ii.

[11] Cf. *infra,* chap. ii.

[12] In Newton's own university, Cambridge, the *Principia* was made known chiefly by tutors, particularly by Richard Laughton. In 1694 the latter persuaded Samuel Clarke to defend in the schools a thesis from Newton's work. Clarke also wrote a textbook on Newtonian principles, or what amounted to that, in the form of an edition of Rohault's Cartesian physics with accompanying comment. This text was used in Cambridge until 1730. See *History of the Study of Mathematics at Cambridge* by W. W. Rouse Ball, pp. 75-77.

MacLaurin's *Account of Sir Isaac Newton's Philosophical Discoveries* referred to the continued hostility of "foreign professors." Some details of that conflict will be discussed in a later chapter.[13]

Cartesian metaphysics never had a great vogue in England, but it continued to have theoretical interest for philosophers well into Hume's time. Norris and Berkeley drew much from Malebranche, as did Hume.[14] The distinction between matter and mind was extremely congenial to theological interests and became almost a commonplace in theological works,[15] but it is difficult to determine how far that distinction was drawn from Descartes, since it was also a tenet of scholasticism.

From about the middle of the century in England there was a notable shift in public interest to questions of politics and history. The gradual secularization of life, which was evident first in the rational movement inside and outside the church, had now gone so far that theological questions lost their absorbing interest for the public and remained only as a concern of a minority until the Oxford Movement seventy-five years later. And political questions, left in abeyance during the somewhat stagnant period following the establishment of the House of Hanover in England, again seemed vital.

It is important to note, in so far as the scanty evidence will permit, what contact Hume had with the general views that prevailed about him. Whatever influences shaped his thought most came at a very early period, for the *Treatise* was written before he had come into personal contact with his philosophical contemporaries in England or France.[16]

---

[13] Cf. *infra,* chap. ii.

[14] Cf. *infra,* chap. iv, p. 83.

[15] See for illustrations, Peter Browne, *The Procedure, Extent, and Limits of the Human Understanding,* p. 65; Andrew Baxter, *An Enquiry into the Nature of the Human Soul,* sec. iii; and Richard Bentley, "Sermon II," in *Works,* III, 34 ff.

[16] I accept Hume's statement that the *Enquiry* fairly represents his position in the *Treatise.*

B. Hume's Introduction to Philosophy. His Associates in Edinburgh

The curriculum of the University of Edinburgh when Hume was a student there reflected accurately that congeries of medieval and modern conceptions which constituted eighteenth century culture. The philosophies of Aristotle, Locke, and Newton were all to be had by the student who cared for them; the university prided itself upon modernity but made no attempt to harmonize new philosophies with the old. All the ethical teaching was pervaded by an optimistic humanism, and it was seldom observed that mechanical physics and Hutchesonian morals might require some modification if both were to be held by a reasonable mind.

David Gregory, professor of mathematics, had introduced Newton's *Principia* in 1683, so that Edinburgh was second only to Cambridge itself in the teaching of the new science, and Gregory's successors in the chair of mathematics continued the scientific tradition. Among them was Colin MacLaurin whom Newton himself recommended for the position.[17]

In logic and metaphysics scholasticism did not give way until somewhat later. In 1730 Wynne's abridgement of Locke's *Essay* was substituted for Aristotle and Ramus.[18] In moral philosophy, the works of Cicero, Marcus Aurelius, Bacon, and Puffendorff were used as texts, but the professor was also required to teach "Pneumatics, i.e., the Being and perfections of the one true God, the nature of the angels and of the soul of man, and the duties of natural religion."[19] (It was for this position that Hume applied in 1745!)

---

[17] Alexander Grant, *Story of the University of Edinburgh,* II, 296-297.
[18] *Ibid.,* II, 328 ff.
[19] *Ibid.,* II, 336. Burton, in his biography of Hume, says that pneumatics meant psychology, but Grant's statement is more authoritative since his quotation, apparently, is taken from the records of the academic senate itself.

A student who entered the university in 1723, as Hume seems to have done, found that the first two years of his course were strictly limited to classical subjects. During the last two years he would be offered Logic, Metaphysics, and Natural Philosophy with the additional opportunity to elect Mathematics and Morals. Graduation was rare,[20] and it was the common thing for the student to leave this modern university with nothing but two years of the classics behind him. Hume's own statement concerning his university training indicates that he belonged to this latter class. There is no evidence that he elected Mathematics or proceeded far enough in the course to reach the study of natural philosophy. "As our college education in Scotland, extending little further than the languages, ends commonly when we are about fourteen or fifteen years of age, I was after that left to my own choice in reading."[21]

To that choice in reading, then, Hume undoubtedly owed his most significant intellectual training. His first philosophical interest seems to have been in classical ethics and the question raised in the deistic controversy. So far as the first of these was concerned, Hume's early attitude was quite what was to be expected of a young man influenced by the optimism of the philosophy of the Enlightenment. He was actuated, as Descartes had been, by the desire for certainty and he believed that self-examination was the road to truth in the matter. He devoted himself almost equally to "books of reasoning and philosophy, and to poetry and the polite authors," and hoped to find some "new medium, by which truth might be discovered."[22]

> I found [he says] that the moral philosophy transmitted to us by antiquity laboured under the same inconvenience that had been found in their natural philosophy, of being entirely hypothetical, and depending more upon invention than experience: every one consulted his fancy in erecting schemes of virtue and happiness, without regard

[20] *Ibid.*, I, 265. Grant states that the degree fell into disrepute after the reorganization of the university in 1708. In 1749 there were only three graduates.

[21] John Hill Burton, *Life and Correspondence of David Hume*, I, 3.

[22] *Ibid.*, I, 14.

to human nature, upon which every moral conclusion must depend. This, therefore, I resolved to make my principal study, and the source from which I would derive every truth in criticism as well as morality. . . . [23] After much study and reflection on this, at last when I was about eighteen years of age, there seemed to be opened up to me a new scene of thought which transported me beyond measure, and made me, with an ardour natural to young men, throw up every other pleasure or business to apply entirely to it.[24]

And for this purpose he had only to consult his own consciousness.

Little more was required to make a man succeed in this study [moral philosophy], than to throw off all prejudice for his own opinions or those of others. At least this is all I have to depend on for the truth of my reasonings, which I have multiplied to such a degree, that within these three years, I find I have scribbled many a quire of paper, in which there is nothing contained but my own inventions.[25]

It was in this early period, too, that Hume came to his own conclusions on the questions which had been raised in the deistic controversy, although the *Essay on Miracles* and the *Natural History of Religion* did not appear until 1757 and the *Dialogues concerning Natural Religion* after his death. His discussion of these problems in the works mentioned was so dispassionate that it is hard for the reader to realize that they had for him the same kind of interest that they had for his contemporaries. Yet he wrote in a letter to Gilbert Elliot, his lifelong friend:

'Tis not long ago I burned an old manuscript book, wrote before I was twenty, which contained page after page the gradual progress of my thoughts on that head. It began with an anxious search after arguments to confirm the common opinion; doubts stole in, dissipated, returned; were again dissipated, returned again; and it was a perpetual struggle of a restless imagination against inclination, perhaps against reason.[26]

While Hume's interest in philosophy was first aroused by classical ethics and problems of theology, he soon turned

[23] *Ibid.*, I, 35.
[24] *Ibid.*, I, 31.
[25] *Ibid.*, I, 35. From a letter written to a physician when Hume was twenty-three years old.
[26] *Ibid.*, I, 332.

to general philosophical writings. He speaks of reading at this time most of the celebrated books in Latin, French, English, and Italian.[27] But there is no evidence for the common assumption that Hume's earliest interest was in the epistemology of Locke and Berkeley. It is certain from the *Treatise* that Hume's reading of modern philosophy was wide, if not scholarly. Hume read as a man might be expected to do who was devoting himself to philosophy and the polite authors. It is probable that in science he did not go far beyond those books which were counted as literature or which had aroused sufficient controversy to be popular. He had some direct acquaintance with the works of Newton[28] and probably with Galileo.[29] He nowhere refers to the popular treatises on Newton, but it is probable that he knew some of them at least. Certainly he shows in his whole discussion a very thorough comprehension of the metaphysical questions which Newtonian science had raised.[30]

Hume sometimes shows that he read the works of modern philosophy with thoroughness. For illustration, we may note his comment on Locke's rationalism in ethics, a point very commonly overlooked. It has been suggested, however, that his information concerning Spinoza may have been taken from Bayle's dictionary. Hobbes he treats in a summary manner. In the *History of England* he has only this to say of his ethical position: "Hobbes' politics are fitted only to promote tyranny and his ethics to encourage licentiousness."[31] He had read Hobbes but failed to find any common ground with him, although we may see some of the same respect for matters of fact in both men. Hume's knowledge of the ethical discussions of his contemporaries is so thoroughly attested by his citations of them that it would be superfluous to give illustrations. Although his

---

[27] *Ibid.*, I, 35.

[28] There is an interesting footnote in the *Enquiry* in which he refers to Newton's theory concerning the ether. See David Hume, *An Enquiry concerning Human Understanding* (Selby-Bigge edition, 1902), p. 73.

[29] David Hume, *Dialogues concerning Natural Religion,* pp. 399-400.

[30] Cf. *infra,* chap. iv, for more detailed discussion.

[31] David Hume, *The History of England from the Invasion of Julius Caesar to the Revolution in 1688,* VII, 355.

early reading was done in comparative isolation, it led him into the very center of those subjects that were of greatest contemporary interest.

Hume's most intimate personal friends were Adam Smith and Gilbert Elliot,[32] but the largest number of his acquaintances were ministers of the Church of Scotland. They were, however, ministers of a new kind, called Moderates, in derision, by the "old lights" and willing to accept the name.[33]

Throughout the eighteenth century, life in Scotland as in England was continually growing more secular, and the change within the church was marked.[34] The Moderates, like the latitudinarians in England, had revolted against both the theocratic ideal of Scotch Presbyterianism and its narrow moral code. They agreed to the dominance of the State over the Church and preached good works rather than the "mysteries of revealed religion." Francis Hutcheson of Glasgow was their prophet; his optimistic ethical teaching, which seemed to harmonize Christianity and paganism, charmed them as it did the students in his classes. Their chief interests were social and literary. They met with their friends in the Select Society founded by Allan Ramsay to discuss the latest topics of interest, but to make sure that their meetings should not be marred by too violent dispute, they ruled out "such as regard revealed religion, or which may give vent to any principle of Jacobitism."[35] With this group Hume found himself at home. Edinburgh furnished an intellectual atmosphere, at once provincial and cosmopolitan. In that environment the conclusions to which Hume had come as a result of his early reading and study were more firmly established, while the form in which they were presented took on urbanity.

---

[32] Gilbert Elliot, Lord Minto, was a Scotch lawyer who held various governmental positions. In 1756 he was a Lord of the Admiralty in the administration of Pitt.

[33] Among them were William Robertson, the historian, Dr. Hugh Blair, a fashionable preacher, and John Home, the author of *Douglas*.

[34] Peter Hume Brown, *The History of Scotland,* III, 331.

[35] John Rae, *Life of Adam Smith,* p. 112.

CHAPTER II

INTERPRETATIONS OF NEWTONIAN SCIENCE IN THE EIGHTEENTH CENTURY

A. Newtonian Concepts Interpreted as Metaphysical Principles

In 1720 and 1721 there was published at the Hague a textbook in physics by William 's Gravesande.[1] The author was of the school of Leibniz and consequently opposed to many of Newton's principles, yet, surprisingly, he called his book *An Introduction to the Philosophy of Newton.* In a preface he gave the reason for the unexpected title.[2] He had used it, not because his book contained the Newtonian system (for it did not), but because it exemplified the Newtonian experimental method. In this tribute 's Gravesande was in agreement with Newton's followers in England.

The experimental method seemed to them to be Newton's first contribution to scientific progress. It was the distinguishing mark which set his philosophy in contrast with Cartesian physics. Newtonian science was experimental, not a priori in method; its laws were, consequently, verifiable, and its entities discoverable. Cartesianism, on the other hand, was a priori, and experimental, if at all, only by accident; as a result, its laws were inaccurate, and its entities (at least the vortices) were myths.

This view was presented in many of the numerous introductions to Newton's philosophy which appeared during the first thirty years after the publication of the *Principia.* The mathematical difficulties in Newton's writing made such popularization desirable. In some cases these introductions were used even in the universities, while the work

[1] W. J. 's Gravesande, *Physices elementa mathematica experimentis confirmata; sive introductio ad philosophiam Newtonianam.*

[2] *Ibid.*, Preface, Vol. II.

of Newton was left for mathematicians. Some of them were of little value, but many were written by scientists of the first rank whose competence could be trusted. Among the latter was Roger Cotes, whose preface to the second edition of the *Principia* served as a brief introduction to Newtonian physics. He held the Plumian chair of astronomy and experimental philosophy in Cambridge from 1706 to 1717 and was chosen by Newton to edit the second edition of the *Principia.*[3]

The Savilian professor of astronomy at Oxford during approximately the same years was John Keill, who gave the first lectures in Newtonian philosophy in that university. His *Introduction to Natural Philosophy* was a publication of those lectures as they were given in 1700.

In 1728 came Pemberton's *View of Sir Isaac Newton's Philosophy.* Pemberton was chosen by Newton to superintend the third edition of the *Principia.* In 1748 there were two accounts of Newton's principles, one by Thomas Rutherforth of Oxford and one by Colin MacLaurin of Edinburgh.

Virtually without exception, these authors of introductions placed especial emphasis on Newtonian method. Roger Cotes, in his introduction to the *Principia,* distinguishes three methods in natural philosophy: the scholastic, the Cartesian, and the experimental. The Cartesians, he says, consider matter as homogeneous and make quantity the basis of all quality, but in order to complete their system they imagine at pleasure unknown figures and magnitudes and occult fluids, and so they run into dreams and chimeras. Cotes argues that, even if philosophers could explain phenomena by the theory of vortices, they would still need to show that vortices really exist as physical facts. Experimental philosophers, in contrast with the other types "frame no hypotheses, nor receive them into philosophy, otherwise than as questions whose truth may be disputed."[4]

---

[3] See *Dictionary of National Biography;* also W. W. Rouse Ball, *History of the Study of Mathematics at Cambridge,* chap. v.

[4] Introduction to the second edition of the *Principia.*

Colin MacLaurin, in his *Account of Sir Isaac Newton's Philosophical Discoveries,* stresses the modesty of Newton's method, his adherence to nature and his opposition to speculation. He contrasts Newton with those who reverse the proper order of research and by clear ideas begin with first causes. He specifically criticizes the Cartesians for their extravagant attempts to deduce nature from the idea of a Perfect Being.[5]

Even Berkeley, an outspoken critic of the conceptions of absolute time and space, the infinite divisibility of matter, and the individual existence of forces as entities, all of which he attributed to Newton, nevertheless recognized Newton's empirical technique and asserted that the latter's mistaken notions on these matters were irrelevant to his real achievements in natural philosophy.[6] He speaks of the *Principia* as the best key for natural science,[7] and he sees "no wit" in any of the mathematicians but Newton.[8]

Newton himself had comparatively little to say about his own method, but what he did say was unmistakable. There is the oft-quoted, *Hypotheses non fingo,* which has sometimes been taken to mean that Newton wished to avoid all tentative formulations. There is no need for such an interpretation, for Newton definitely states that he means by hypotheses only those suppositions which are not based upon phenomena. These, "no matter what their origin, whether metaphysical or physical, whether of occult qualities or mechanical, have no place in experimental philosophy."[9]

---

[5] Colin MacLaurin, *An Account of Sir Isaac Newton's Philosophical Discoveries,* pp. 21-22 and chaps iv, v.

[6] "Sir Isaac owns his book could have been demonstrated on the supposition of indivisibles," *Commonplace Book,* Vol. IV of the *Works of George Berkeley,* Fraser ed., p. 499.

[7] *A Treatise concerning the Principles of Human Knowledge,* secs. cx, cxii, Vol. I of the *Works of George Berkeley,* p. 212.

[8] *Commonplace Book,* p. 497.

[9] Isaac Newton, *Mathematical Principles of Natural Philosophy,* trans. into English by Andrew Motte, Bk. III, General Scholium (1st American edition), pp. 506-507.

Yet, in spite of these facts, which in themselves warranted the contrast with Cartesianism and the general admiration for Newton as an empiricist, the Newtonian science culminated in a popular belief in superempirical entities as remote from immediately verifiable fact as the vortices of Descartes had been. It was interpreted as a system of metaphysics, an exhaustive description of reality. Methodological concepts of the new philosophy appeared in popular thought as independently existing realities. Nor was this popular interpretation confined to the non-technical public; some of Newton's followers adhered to it, as they indicated when they were led from the discussion of strictly scientific problems to general philosophical ones. Newton himself was believed by many to have given countenance to such an interpretation, and theologians, in particular, made use of his name to give weight to their arguments. In the rest of this chapter we shall note in detail illustrations of this type of interpretation.

If we ask what kind of universe the "mechanical" science of the seventeenth century seemed to present to the popular imagination, the answer is clear. It is furnished by poets, theologians, moralists, and philosophers with few dissenting voices. The universe, they generally agreed, is really and in itself a system of bodies moving in absolute space and time. As Cudworth put it, "the whole corporeal world in its naked hue is nothing but a heap of dust, or atoms of several figures and magnitudes variously agitated up and down."[10] All other apparent qualities of the world are secondary, due to the activities of minds, and, in a sense, illusory.

For science the distinction between primary and secondary qualities was a methodological one; the former were those aspects of nature which could be mathematically described, the latter were unstable and of such a type that they could not be reduced to quantitative terms. It was, however, easy to interpret this distinction as an absolute

[10] Cf. *supra*, p. 4.

metaphysical one, and the success of science perhaps contributed to the particular result that was achieved. Those qualities with which science could deal mathematically were conceived to be the "real" character of the universe, while the others were aspects or affections of mind and not true of the natural world. This dualism received its formal statement in the philosophy of Descartes and of Locke, but it was probably spontaneously formulated by many who were little concerned with technical philosophy. At least it became the dominant point of view, so widespread that it is to be found, in one way or another, in a great many of the writings of the early eighteenth century.[11] We have noted that it found expression in poetry as well as in technical writing; theologians either accepted it and attempted to adapt it to their uses or felt it necessary to oppose it as a ground of atheism, while philosophers were largely occupied with the problems which it set.

Although the dualistic philosophy was an interpretation of science, it contained an inherent scepticism as to the possibility of any knowledge of the real world. For, as Berkeley and Hume were to show, our only access to the world is through the secondary sensory qualities which may, or may not, represent the reality accurately. The only truths which can be verified in experience must relate not to some absolute matter moving in absolute space and time but to the relations among those sensory qualities themselves. A supposedly experimental science thus seemed to lead to an *impasse,* unless its laws could be interpreted as being descriptive of experienced events only. Both Berkeley and Hume argued for such an interpretation.[12] The difficulty

[11] It is scarcely necessary to cite the evidence for this which is found in statements of Locke, Berkeley, and Hume. The following illustrations indicate the wide dissemination of the point of view here referred to. Cf. *supra,* chap. i, pp. 3-5; Sir Isaac Newton, *Opticks, or a Treatise of the Reflections, Refractions, Inflections, and Colours of Light* (London, 1730,) pp. 108-109, also Bk. III, Queries 12 and 13; Peter Browne, *The Procedure, Extent, and Limits of the Human Understanding,* p. 208; John Toland, *Christianity Not Mysterious,* sec. i; Richard Bentley, "Sermon I" in *Works,* III, 37.

[12] Cf. *infra,* chap. iii, for Berkeley, and chap. iv for Hume.

was, however, not generally recognized, and to the popular mind there seemed to be no discrepancy between a method which claimed to test all theory by experience and a resultant philosophy which denied that the facts of experience were valid clues to reality.

B. Interpretations of Space and Time

We shall note first, before passing to the central idea of forces, the interpretation frequently placed upon the Newtonian concepts of absolute space and time. While Newton in the *Principia* operated with these concepts as methodological postulates, without considering their metaphysical status, he nevertheless sometimes used the terms in such a way as to indicate that he shared in the belief that they stood for ultimate reality. He was generally held to have established this position beyond the possibility of doubt. At least it can be said that Newton's definitions of space and time, if not his use of them, were easily open to a realistic interpretation, and that interpretation was, at first, quite generally made. Newton spoke of "absolute, true and mathematical time" which "from its own nature flows equally without regard to anything external," and of "absolute space, which in its own nature, without regard to anything external, remains always similar and immovable."[13] He followed these definitions by a discussion of absolute motion in which he discriminated between absolute and relative motions by their causes and effects. This was an attempt to get around the difficulty that no body in the universe is known to be completely at rest, i.e., that there is no fixed frame of reference for determining absolute motions.[14] In a query of the *Opticks* he raised the question:

> Does it not appear from phenomena that there is a Being incorporeal, living, intelligent, omnipresent, who in infinite Space, as it were in his Sensory, sees the things themselves intimately, and throughly perceives them and comprehends them wholly by their immediate presence to himself. . . .[15]

[13] Isaac Newton, *Principia,* Scholium following Definitions, p. 77.
[14] *Ibid.,* pp. 78-82.
[15] Isaac Newton, *Opticks,* Bk. III, Query 28.

Clarke later stated that Newton had meant this only in a figurative sense, but there was little point in the figure unless space was understood to be a real existence.

Empirical followers of Newton on the Continent found it difficult to harmonize the concepts of absolute space and time with the empirical method as they understood it. It was to them a contradiction that absolute space and time should be treated as necessary presuppositions of science, while at the same time they were never given directly in sensory experience.[16]

In England the scientists treated them as principles of method without much discussion of their metaphysical status; but the theologians took up the matter as one which distinctly bordered upon their territory, for the qualities ascribed to absolute space were virtually identical with those traditionally supposed to belong to the deity alone.

Discussions of the status of space and time thus brought the question of the meaning of experimental method into the foreground. Could experimental formulations, based upon sensory experience, be used legitimately as a basis for inferring existences which themselves could never enter directly into anyone's experience? Or did empiricism mean that science must be limited to the formulations of the laws of experienced things without the attempt to account for them in terms of entities beyond the realm of sensed realities?

C. Force: Vis Inertiae; Vis Gravitationis

Among the scientific followers of Newton in England, the question of the meaning of empiricism for science was first brought to a sharp focus by the attacks of some of the European physicists upon the Newtonian conception of central forces. The discussion which arose upon this point brings out clearly the difficulty which prevailed in gaining a consistent empirical method, and at the same time shows

[16] Ernst Cassirir, *Das Erkenntnisproblem in der Philosophie und Wissenschaft der neueren Zeit,* II, 463 ff.

most clearly how the supposed results of the new philosophy were turned to rationalistic uses. An analysis of that discussion may bring to light a part, at least, of the background against which Hume was to project his theory of causation.

In the literature devoted to science and philosophy in England from 1690 to 1750 there is an interesting recurrence of difficulties centering in the idea of force. The subject appears in all of those popular accounts of Newtonian philosophy to which I have referred; Cotes, Keill, Pemberton, and MacLaurin all treat it, accepting the discoveries and formulations of Newton but struggling with certain theoretical difficulties which they suggest. Similar questions regarding force appear in a more unexpected place, in the writings of the Cambridge Platonists. Clarke and Bentley in the Boyle lectures use the concept as part of their proof of the existence of God. Finally, Berkeley and Hume attack the rationalistic use of the conception by an analysis which shows it to be a valid empirical formulation but nothing else.

As we follow the course of these arguments, we find questions which now seem curiously stated. Is gravitation mechanical or does it result from some immaterial principle? If it is non-mechanical, is it then an occult quality? If it is mechanical, does it arise from affections of body or matter? If we put the difficulty in more familiar terms, it comes to this: the recognized mathematical characteristics of matter do not account for gravitation, so that an attempt to determine its cause raises questions of particular complexity. Is it to be taken as an ultimate character of nature or matter, either an innate quality or an order? Or does it require a non-material, a supernatural explanation? In the attempt to answer such questions eighteenth century writers found themselves involved in a discussion of the meaning of mechanism, empiricism, and nature, a discussion on the border line between science and metaphysics.

Fifty years and more after the publication of Newton's *Principia,* gravitation was still the chief subject of dispute

between the followers of Newton and of Leibniz. The editor of Colin MacLaurin's introduction to Newtonian science stated in 1748 that MacLaurin discussed only those parts of Newton's philosophy which were still in controversy. He cited gravitation, particularly, as an example, since it was still taken by "foreign professors" to be proof that Newton had left the straight and narrow way of reason to take refuge in scholastic occult qualities in order to explain natural phenomena.

The charge that Newton had reintroduced occult qualities into physics first came out clearly in the famous correspondence between Clarke and Leibniz in 1715 and 1716. The question of defining the miraculous had arisen, and in giving an illustration of his use of the term, Leibniz took the opportunity to attack the Newtonian conception of force as he understood it.

> If [he said] God could cause a body to move in the ether round about a certain fixed center, without any other creature acting upon it, I say it could not be done without a miracle; since it cannot be explained by the nature of Bodies. For a free body does naturally recede from a curve in the Tangent. And therefore I maintain that the Attraction of Bodies, properly So-called, is a Miraculous Thing, since it cannot be explained by the Nature of Bodies. . . . 'Tis also a supernatural thing, that Bodies should attract one another at a distance without any intermediate means.[17]

Leibniz concludes that the accepted maxim that the supernatural is to be excluded from natural science

> overthrows Attractions, properly so-called, and other operations inexplicable by the natural powers of Creatures; which kind of operations, the assertors of them must suppose to be affected by Miracles or else have recourse to absurdities, that is, to the occult qualities of the Schools; *which some have begun to revive under the specious name of forces,*[18] but they bring us back again into the Kingdom of Darkness.[19]

In his reply Clarke tried to make it clear that Leibniz

---

[17] *A Collection of Papers Which Passed between the Late Learned Mr. Leibniz and Dr. Clarke in the Years 1715 and 1716, Relating to the Principles of Natural Philosophy and Religion,* p. 7.

[18] Italics mine.

[19] *Ibid.,* p. 265.

had misunderstood the Newtonian concept of central forces. For Newton the concept was a methodological one, and the law of gravitation was a descriptive formula representing the analysis of observed motions of bodies. It did not involve the existence of forces as entities acting at a distance. Thus Clarke agreed that attractions "properly so-called," or taken as metaphysical principles at variance with the observed facts of nature, must be excluded from science. But Newtonians did not take them so.

> By that term we do not mean to express the Cause of Bodies tending toward each other, but barely the effect or the Phenomenon itself, and the Laws of Proportions of that Tendency discovered by Experience; whatever be or be not the cause of it.[20]

Clarke rejected, as positively as did Leibniz, the idea of forces acting at a distance.

> That one body should attract another without any intermediate means, is indeed not a Miracle but a contradiction: For 'tis supposing something to act where it is not. . . . But the Means by which two Bodies attract each other may be invisible and intangible, and of different nature from mechanism; and yet acting regularly and constantly may well be called natural: being much less wonderful than animal motion, which yet is never called a miracle.[21]

The issue in this controversy between Leibniz and Clarke was a fundamental one and furnishes the clue to an understanding of the way in which empirical scientific concepts were used as the basis for a rationalistic metaphysics. For it is clear that what Leibniz meant to attack was not the principle of gravitation as a scientific formulation, but rather the force of gravity as a metaphysical entity. He made here no consistent distinction between methodological principles and metaphysical ones. It was consequently easy for him to assume that when Newton referred to central attractive forces he meant to indicate that such forces were existent entities accounting for the facts of gravitation. Clarke, on the other hand, pointed out that Newton would not countenance such an interpretation, since he had steadily

[20] *Ibid.*, pp. 355-359.
[21] *Ibid.*, p. 151.

refused to consider the cause of gravitation until there should be more experimental evidence to support an hypothesis concerning it.

The question around which the discussion of Leibniz and Clarke centered was the same one which had arisen with regard to space and time: Could the conceptions of science be regarded as referring to existent entities if those entities were beyond the reach of direct experience? Were forces to be thought of as metaphysical realities back of the phenomena of sense experience and causing them, or was the term to be interpreted as merely descriptive of certain aspects of experienced events? We shall note some of the typical answers which were given.

Leibniz' objection to what he believed to be the Newtonian doctrine of forces was entirely valid from his own point of view. He accepted, at least for the purpose of physics, the prevailing Cartesian definition of matter as extension and consequently could not admit among its elementary qualities a "property" of gravity or attraction. Since he assumed that it was a legitimate procedure to ascribe physical reality only to those aspects of the universe which could be treated in a geometrical physics, he legitimately concluded that any explanation of the phenomena of gravitation must be in terms of matter and motion. His own explanation, therefore, was a modification of the system of Descartes, a description based upon the conception of vortices.

The question of the cause of gravitation was a troublesome one from the first, for there was a peculiar difficulty in answering it, a difficulty which could not be met by further investigation but seemed to require a revision of the conceptions in common use in scientific explanation. In order to understand that difficulty, it will be necessary to consider what was usually meant by explanation.

To explain any physical phenomenon meant, in general, to give its mechanical causes. Yet it is difficult to find in early eighteenth century writing any stated definition of the

term "mechanical." It was in too general use, perhaps, to suggest the need of definition. Its meaning emerges, however, from many references to it. To explain a phenomenon mechanically meant to account for it in terms of the elementary or original qualities of matter in connection with the laws of motion. The qualities of matter were considered by some to be self-evident; by others they were held to be experimentally determined. The Cartesian school included among them only the geometrical properties of extension, while the English scientists and philosophers, under the influence of Newton, added solidity, interpreted as mass.[22]

Now, for scientists in general, up to the time of Newton, "mechanical" and "natural" were virtually synonomous terms. This identification seemed to be established beyond doubt by the success of all the great scientific figures since the Renaissance. To question it was to cast doubt on Galileo, Kepler, and the entire tradition of modern science. Every scientist of repute wished to keep his theory in line with that main supposition which had been so fruitful in investigation and in the overthrow of scholasticism.

If gravitation, then, or any other part of the order of nature was to be explained on natural grounds, it was to be explained mechanically, that is, in terms of particles of matter in motion. Leibniz, for example, adhered to Cartesian principles in his explanation for the reason that they seemed to promise the desired mechanical account. And while Newton rejected the Cartesian scheme on the ground that it did not accord with experimental fact, he, too, thought of the problem of the cause of gravitation in mechanical terms. In general, the same was true of his followers, although, as we shall see, their attempts led to a

[22] "A quality is said to be mechanically caused when it is produced by some of the other affections of body." (Roger Cotes, Preface to the *Principia.*) George Cheyne, in *Philosophical Principles of Religion, Natural and Revealed,* defined the mechanical as that which could be explained according to the three laws of motion (see chap. i, p. 24). Colin MacLaurin gave a similar definition. See *An Account of Sir Isaac Newton's Philosophical Discoveries,* p. 241.

revision of the conceptions of both mechanism and nature. They found it necessary, in some cases, to add to the qualities which had been assigned to matter, in order to account for the empirical fact of gravitation, and it was this which gave ground for the accusation that they had deserted the way of reason and reverted to scholastic occult qualities.

It was universally agreed that motion at a distance was an impossibility in the natural order. Motions of bodies must always be due to the impact of other bodies, directly or indirectly, in accordance with the laws of mechanics. This supposition accounted for the attempts to explain gravitation by means of an etherial fluid. It was argued that if such an ether existed, the movements of its minute particles might, by impact, produce the effects called gravitation. As we shall see later, Newton's first attempts at explanation were of this kind.

Yet this interpretation met one serious difficulty. According to the laws of mechanics, when one body moved another by impact, or impulse, as it was usually called, the resulting effect would be in proportion to the surfaces of the bodies involved. But the motions subsumed under the term "gravitation" were always in proportion to the mass of the bodies, not to their surface. As Clarke states the difficulty, gravitation cannot be explained by impulse, for it acts in proportion to the quantity of solid matter and not to the superficies.[23]

One question immediately arises. Was the difficulty with which Clarke and Leibniz were dealing implicit in the work of Newton himself or was it due to a misunderstanding of the import of Newtonian science?

From the standpoint of mathematical physics there was, of course, no pressing difficulty, for in that field Newton was dealing with the mathematical formulation of empirically determined relations. Gravitation was a fact to be described, and the concept of central forces was a methodo-

[23] Samuel Clarke, *A Discourse concerning the Unchangeable Obligations of Natural Religion,* Vol. II of *Works,* edited by Benjamin Hoadly, p. 601.

logical tool for a complete description. There was no need to raise the question of the cause of gravitation nor to consider the metaphysical status of forces. In view of the fact, however, that such questions had been raised by others, Newton apparently took particular care to clarify his own empirical usage.

Inertia is clearly defined in the opening pages of the *Principia.*

> The *vis insita,* or innate force of matter, is a power of resisting, by which every body, as much as in it lies, endeavors to persevere in its present state, whether it be of rest, or moving uniformly. . . . It differs nothing from the inactivity of mass but in the manner of conceiving it. It may therefore be called *vis inertiae.*[24]

The somewhat ambiguous expression, "innate force," in the first part of the definition is clarified by the identification of inertia with the inactivity of mass. Force, as here used, suggests neither an entity resident in matter nor an occult quality.

Newton's definition of attraction is equally empirical.

> I here use the word attraction in general for any endeavor, of what kind soever, made by bodies to approach to each other: whether that endeavor arise from the action of the bodies themselves, as tending mutually to or agitating each other by spirits emitted, or whether it arise from the action of the ether or of the air, or of any medium whatsoever, whether corporeal or incorporeal, anyhow impelling bodies placed there-in towards each other.[25]

Newton definitely limited his further discussion of the nature of forces to their empirical meaning as set forth in these definitions. In the *Principia,* he states that he wishes "to avoid all questions about the nature or quality of this force [gravitation], which we would not be understood to determine by any hypothesis."[26]

Upon the nearly identical problem of the cause of gravitation he technically maintained the same position. In the *Principia* he stated that he was not able to find the cause of

---

[24] Isaac Newton, *Principia,* Bk. I, Definition III, p. 73.

[25] *Ibid.,* Bk. I, sec. xi, Scholium following Prop. LXIX, Theorem XXIX, pp. 217-218.

[26] *Ibid.,* p. 503.

gravitation and therefore framed no hypothesis. "For whatever is not deduced from the phenomena is to be called an hypothesis; and hypotheses, whether metaphysical or physical, whether of occult qualities or mechanical, have no place in experimental philosophy."[27]

Although Newton thus excluded questions concerning the ultimate nature and cause of gravitation from experimental physics where they had no legitimate place, he could not avoid them altogether. The boundary line between physics and metaphysics was not easy to draw, and Newton himself had a strong interest in ultimate questions, particularly in their bearing upon theology. Furthermore, he was repeatedly asked for his opinion by friends and attacked for his supposed views by opponents. He did, therefore, venture upon some speculations concerning the problems suggested, but the discussion of them was stated in a strictly tentative form and was usually confined to those parts of his writings which were obviously addenda to the main body of his work. Such statements on gravitation appear, for instance, at the close of the third book of the *Principia* in the General Scholium and in the queries of the *Opticks* where Newton dealt tentatively with questions upon which he could form no hypotheses.

From these sources it seems clear that the difficulties involved in the problem of the cause of gravitation were recognized by Newton and stated by him in much the same terms that Clarke and others were using.[28] Gravity must be either an original quality or order in matter, or it must be accounted for by mechanical causes. Yet it is impossible to admit gravity as essential to matter and very difficult to find a mechanical explanation.

In the third book of the *Principia* Newton states the rule that qualities that are found in all bodies experimented upon are to be taken as belonging to bodies in general; and

---

[27] *Ibid.*, Bk. III, General Scholium, pp. 506-507.

[28] *Ibid.*, p. 506. See also MacLaurin, *op. cit.*, Bk. III, chap. i, pp. 241, 387; Thomas Rutherforth, *A System of Natural Philosophy*, pp. 27-28; Cheyne, *op. cit.*, pp. 121-123, 187-188.

in a comment upon this methodological principle, he observes that there is better warrant for including gravitation among such qualities than for admitting impenetrability, since the latter cannot be experimentally verified in celestial bodies, at least. Then he adds the significant statement: "Not that I affirm gravity to be essential to bodies; by their *vis insita* I mean nothing but their *vis inertiae*. This is immutable. Their gravity is diminished as they recede from the earth."[29]

So far as experience goes, then, gravity is a fundamental characteristic of all bodies, but since it is not constant, it cannot be taken as ultimate, and its causes are to be looked for. As we have seen, Newton did not wish to form an hypothesis as to the cause, since he could not determine the matter experimentally. He did, however, make an interesting comment. The cause of gravitation, he said, must penetrate matter without diminution and must be in proportion to the *quantity* of solid matter, for the force of gravity acts "not according to the quantity of the surfaces of the particles upon which it acts (as mechanical causes use to do)."[30]

The latter observation shows clearly enough why Newton could not accept the current conceptions of an ether which would transfer motion by impact of its particles. He consequently suggested, at different times, an hypothesis of an ether of a somewhat different kind. In the twenty-first query of the *Opticks* he asked whether there might not be a medium composed of very small elastic particles, most rare within bodies and increasing in density with the distance from them. If the elastic force of such a medium were very great, it might account for the effects of gravitation, since bodies would tend to move from the dense to the rarer portions of the medium. Newton believed that there was some evidence for the existence of such an ether in the phenomena of sound transmission.

---

[29] *Principia,* Bk. III, "Rules of Reasoning in Philosophy," p. 385; also Advertisement to the 1721 edition of the *Opticks.*

[30] *Ibid.,* Bk. III, General Scholium, p. 506.

A theory of this kind, although it presented difficulties, was thoroughly in keeping with the spirit of experimental philosophy. Yet Newton also considered what was apparently a different hypothesis, more speculative in character, which gave rise to an impression that he was looking for a non-physical, possibly a supernatural, explanation of gravitation. It was referred to in the last paragraphs of the *Principia*.

> Hitherto we have explained the phenomena of the heavens and our sea by the power of gravity, but have not yet assigned the cause of this power. This is certain, that it must proceed from a cause that penetrates to the very centers of the Sun and Planets, without suffering the least diminution of its force: that operates according to the quantity of the solid matter which they contain, and propagates its virtue on all sides, to immense distances, decreasing always in the duplicate proportion of the distances. . . . And now we might add something concerning a most subtle Spirit, which pervades and lies hid in all gross bodies; by the force and action of which Spirit, the particles of bodies mutually attract one another at near distances, and cohere, if contiguous. . . . But these are things that cannot be explained in a few words, nor are we furnished with that sufficiency of experiments, which is required to an accurate determination and demonstration of the laws by which this electric and elastic Spirit operates.[31]

This can readily be interpreted as a variation of the ether hypothesis, but the wording suggested, at least, that Newton had in mind a medium like that which More had conceived as necessary to account for phenomena which were more than mechanical. More's picturesque account of this medium can be given in brief quotations. "There is a principle," he says, "transcending the nature and power of matter that does inspire and rule all, that directs the motion of every part and parcel of matter . . . in pursuance of such general designs as are best for the whole." This spirit of nature is the unconscious instrument of God. In itself it is an incorporeal substance "without sense animadversion, pervading the whole matter of the Universe and exercising a plastical power therein, according to the

[31] *Ibid.*, Bk. III, General Scholium, p. 507.

sundry predispositions and occasions in the parts it works upon, raising such phenomena in the world by directing the parts of matter and their motion, as cannot be resolved into mere mechanical powers."[32]

The doctrine of effluvia which Boyle and Gilbert had made use of had affinities with the plastic spirit of More. Both Boyle and More had influenced Newton, and it would not be surprising if he sometimes conceived the etherial medium to be an immaterial one, not necessarily a spirit in the psychical sense of the term but at least non-mechanical in its operations, directing matter for the good of the whole.

It is probable that while Newton considered various types of explanation of the cause of gravitation, he found none which was entirely satisfactory, or at least none for which there was more than a suggestion of evidence. Yet it is clear that he had no a priori objection to any explanation which would prove to be plausible and for which evidence could be adduced. He even considered the idea that gravitation might be an order impressed upon matter without being a resultant of the qualities of atoms.

> It seems probable to me, that God in the beginning formed matter in solid, massy, hard, impenetrable, movable particles, of such size and figures, and with such properties, and in such proportions to space, as most conduced to the end for which he formed them: . . .
>
> And therefore that nature may be lasting, the changes of corporeal things are to be placed only in the various separations and new associations and motions of these permanent particles; . . . It seems to me further, that these particles have not only a *vis inertiae* . . . but also that they are moved by certain active principles, such as that of gravity. . . . These principles I consider not as occult qualities, supposed to result from the specific forms of things, but as general

[32] Henry More, "An Antidote against Atheism," in *A Collection of Several Philosophical Papers,* 4th ed., Bk. II, chap. ii, sec. xiii, p. 46. A detailed treatment of the various hypotheses suggested by Newton is given in *Matter and Gravity in Newton's Physical Philosophy,* by A. J. Snow. It seems to the writer that Professor Snow does not sufficiently recognize that immaterial spirits were not thought of as immaterial in the literal sense, but as very rare media, acting non-mechanically. An hypothesis regarding them might be a physical hypothesis, although they were undoubtedly thought of somewhat mystically.

laws of nature, by which things themselves are formed; . . . For these are manifest qualities, and their causes are occult, their truth appearing to us by phenomena, though their causes be not yet discovered. . . . Now by the help of these principles, all material things seem to have been composed of the hard and solid particles above mentioned, variously associated in the first creating by the counsel of an intelligent agent, for it became him who created them to set them in order. And if he did so, it is unphilosophical to seek for any other origin of the world, or to pretend that it might arise out of chaos by the mere laws of nature: though once being formed, it may continue by those laws for many ages.[33]

Even here, however, we can come to no certainty regarding Newton's conclusions, for, after referring to active principles as general laws of nature by which things are formed, as if they might be ultimate, he again speaks of their occult causes.

If gravitation, however, is an order imposed at the creation, the net result for science is quite in keeping with an empirical point of view. Leibniz' objection has no weight except for those who would refuse to allow any qualities in matter except those which had been previously included by physicists.

In the first two decades of the eighteenth century the scientific followers of Newton in England were divided upon the question of the meaning of empirical method, particularly in its application to such problems as that of the cause of gravitation. A small group adhered rigidly to empiricism, not only within the field of scientific investigation, but in philosophic interpretation as well. Others encouraged the rationalizing interpretations placed upon scientific concepts by many theologians and popular writers. The empiricists believed that they were adhering to the principle of Newton, but it is clear that they went beyond him, at least in the conscious working out of the implications of their method. On the other hand, the rationalists, also, continually appealed to statements in the *Principia* and the *Opticks* to support their views.

---

[33] Isaac Newton, *Opticks,* Query 31, pp. 375 ff.

The empirical view was best stated by John Keill, the Savilian professor of astronomy at Oxford. In his lectures delivered in 1700, and published as an introduction to natural philosophy, he used the terms "quality," "faculty," and "attraction," and his justification for doing so furnishes a clear statement of the empirical attitude.

> Not that by these words we pretend to define the true and physical cause and modus of action, but as these actions may be augmented and diminished, and therefore since they have the properties of qualities, the same name may be applied to them, so that we thereby only mean to express the Ratios of their forces or their augmentation and diminution. For example, we may say that gravity is a quality, whereby all bodies are carried downwards, whether its cause arises from the virtue of the central body, or is innate to matter itself; or whether it proceeds from the action of the ether agitated by a centrifugal force, and so tending upwards; or lastly whether it is produced after any other manner whatever. . . . So likewise we may call the endeavor of bodies to approach one another, attraction, by which word we do not mean to determine the cause of that action, whether it proceed from the action of bodies tending mutually to one another, or from their being agitated by effluvia, or from the action of the ether, or air, or any medium whatever that impells the bodies, which float in it toward one another: such actions, I say, we may express by these words. And if the true causes are hid from us, why may we not call them occult qualities? Certainly by the same right, as in Algebraical Equations we denote the unknown quantities by the letter x or y; and not by a very unlike method we may investigate the intensions and remissions of these qualities which follow from certain supposed conditions.[34]

Keill was thus defending the right of the scientist to use the word "attraction" to describe empirical events without having metaphysical implications imputed to him. Even occult qualities might be admitted so long as they are regarded only as the unknown causes of events awaiting discovery.

There is no discussion of the causes of gravitation in Keill's lectures, since the question had no place in a strictly scientific treatment of mathematical physics. The point is stressed, however, that *vis inertiae* is a term useful in

[34] John Keill, *An Introduction to Natural Philosophy*, p. 4.

descriptive formulae of motion, but that it is without further significance. It is not to be taken as referring to forces existing as entities resident in matter.[35]

Keill disposes quite summarily of another question with which some philosophic scientists had been seriously concerned, the question of the conservation of motion. Newton had suggested that there must be some means of renewing motion, constantly diminishing through the impact of bodies. Keill says frankly that philosophers had better cease discussing the cause of the continuance of motion, for the cause is God who preserves motion as he does the other affections of bodies such as figure and color.[36]

The foregoing statement suggests, at least, that Keill had broken with the type of mechanical philosophy which limited the qualities of matter to geometrical ones, since he was willing to admit that motion is not to be treated as a special case requiring an explanation but as an empirical aspect of the natural universe on a par with such other aspects as figure and color. It is caused by God but requires no special dispensation to place it in the universe since it is not foreign to it. We should consequently suppose that he would have found no difficulty in treating gravitation in the same way as an original order of nature in case it could not be traced to mechanical principles.

Roger Cotes has generally been held responsible for giving gravity a metaphysical status not in keeping with the intention of Newton. The way in which he stated the matter undoubtedly gave some ground for the accusation; his discussion of gravitation was taken by many to mean that Newton had believed in the existence of forces behind phenomena and causing them.

Yet it is doubtful whether he intended to give such an impression. His meaning seems to have been empirical enough. Accepting the general notion that explanation must be in terms of the ultimate or original properties of

[35] *Ibid.*, pp. 134-135.
[36] *Ibid.*, pp. 136-137.

matter, he took the most direct method possible of accounting for the facts of gravitation. First, he followed Newton and other English empiricists in refusing to accept any a priori limitations of the qualities which were to be found in bodies. He called everything mechanical which could be traced to elementary properties, but held that the elementary properties were to be determined by investigation, not by arbitrary definition. Gravity, discovered in the same manner as the other admitted properties of matter, must be included, since it as evident as extension, impenetrability, or mobility. Upon this point Cotes was in disagreement with Newton, who had rejected gravity as an essential character of bodies, yet there is nothing in his treatment to indicate that he believed that gravitation was due to an occult force lying behind the empirical facts and beyond discovery.[37]

Pemberton, in his *View of Sir Isaac Newton's Philosophy,* apparently has the attacks upon Newton definitely in mind and consequently speaks directly to the point. The causes of gravitation, he admits, are hidden, and, in that sense, gravitation may be spoken of as an occult quality. Yet it is not occult in the sense that it precludes further investigation as the medieval occult qualities did.[38] Pemberton follows Newton in detail on the question as to whether gravitation is to be considered as an essential property of matter. He insists that the idea of matter is not arbitrary but that new qualities must be admitted whenever they are discovered. Essential properties of matter, however, belong to individual particles without reference to their relations to other bodies, so that gravitation must be excluded from among them.[39]

All of the more empirical interpreters were agreed that gravitation was to be accounted for, if possible, in terms of more ultimate properties of matter; yet recognizing the difficulties of such explanation, they were willing to admit

[37] Introduction to the second edition of the *Principia.*
[38] Henry Pemberton, *A View of Sir Isaac Newton's Philosophy,* pp. 18-19.
[39] *Ibid.,* pp. 20-22.

the possibility that it might be an original character of the universe, in itself ultimate, either as an order impressed upon things, or as, in some sense, a quality of all matter. In either case there was no departure from empirical method; there was, rather, an extension of the method of empiricism in the recognition that the properties of matter were to be determined experimentally rather than arbitrarily.

The concept of gravitation as a quality, however, verged closely upon another: it was easy to pass from that notion to the idea that gravity was an entity, existing as the cause of gravitation. Indeed that was the interpretation very generally held by the non-scientific public. It found some support in the writings of scientists, among them MacLaurin, Rutherforth, and Clarke.

MacLaurin, in his *Account of Sir Isaac Newton's Philosophical Discoveries,* defended Newton from the charge of having introduced occult qualities into science by pointing out that he had "plainly signified that he thought that those powers arose from the impulse of a subtile or aetherial medium that is diffused over the universe."[40] Yet MacLaurin himself apparently rejected this explanation on the ground that gravitation, being in proportion to the quantity of matter rather than the superficies, could not be mechanical.[41] On the other hand, he also rejected the view that gravity was an essential quality of matter. It is important to note his reason for this since it indicates that he conceived forces metaphysically. He states an objection which appears repeatedly in the arguments of the theological interpreters of science, the objection that a real power of gravitation would be contrary to the force of inertia and could not exist with it in matter. Of course, it is obvious that gravitation and inertia as experimentally determined are not contradictory, but if conceived as forces resident in the same matter, they may be. MacLaurin did

[40] MacLaurin, *op. cit.,* p. 111.
[41] *Ibid.,* pp. 241, 387.

not attempt to solve the difficulty but contented himself with the general consideration that the powers in nature which are above mechanism may perhaps be resolved into one power which derives its efficacy, in a great measure, from the first mover.[42]

Rutherforth seems to have held a similar view of forces, although his language is difficult to interpret. At least, he emphasized the point that inertia is something more than impassivity and referred to it as a real force. He did not, moreover, believe that gravity could be an essential property of matter, and he gave the same reason MacLaurin had advanced.[43]

D. Rationalistic Interpretations of the Concept of Force

Both MacLaurin and Rutherforth were scientists who had interests in theology. MacLaurin believed that "natural philosophy is subservient to purposes of a higher kind, and is chiefly to be valued as it lays a sure foundation for natural religion and moral philosophy."[44] One chapter of his work on natural philosophy treated of "The Supreme Author and Governor of the Universe, the True and Living God," and was intended to be an explanation of Newton's theological position as suggested in the last chapter of the *Principia*.

Samuel Clarke stood even more definitely on the border line between science and theology. Although he had been among the first to defend the Newtonian view against the Cartesian at Cambridge and had devoted himself to maintaining that view against European criticism, it was the general philosophical and theological aspect of the subject which interested him most. Because of his standing as a supposedly accredited exponent of the Newtonian system, Clarke was influential to an unusual degree. He undoubt-

[42] *Ibid.*, p. 111.
[43] Thomas Rutherforth, *A System of Natural Philosophy*, pp. 3-4.
[44] MacLaurin, *op. cit.*, p. 3.

edly did much to establish the popular conception of the new science, giving forces an independent metaphysical status. And he took the further step of resorting to a specific theological explanation of such forces. They became for him a certain link between the natural and the supernatural, a Jacob's ladder reaching up from a mechanical universe.

In his dispute with Leibniz, Clarke had argued, of course, that gravitation might be explained naturally without being forced into the mechanical formula. But that suggestion, so far as he was concerned personally, seems to have been only for foreign consumption or to represent a view to which he had come long after the Boyle lectures which he delivered in 1704 and 1705. For in those sermons, intended to demonstrate the existence of God, he introduced an argument from the fact of gravitation. Power, he argued, cannot belong to matter itself, for, by definition, matter is inert. Yet it cannot be explained as due to the motions of an etherial medium, since it is in proportion to the quantity of matter. It "cannot possibly be the result of motion originally impressed on matter, but must be caused by something which penetrates the very solid substance of all bodies."[45] It is, he concludes, due to the imminent action of God.

Clarke had suggested an interpretation of gravitation which fitted in admirably with the strong natural desire of theologians to bend the Newtonian science to apologetic purposes. The most outspoken and, in some respects, the most interesting attempt of this kind was made by Richard Bentley. Being a theologian and therefore not so restrained by scientific considerations as was Clarke, he brought into the open the conclusions which the latter had only suggested. He found it repugnant to both reason and common sense that matter should be acted upon by forces

[45] Clarke, *A Discourse concerning the Unchangeable Obligations of Natural Religion,* in *Works,* II, 601. The same argument appears in *A Demonstration of the Being and Attributes of God, ibid.,* p. 556.

without immediate contact. But what, he asked, if action without contact, repugnant though it be, should nevertheless be a fact? The answer seemed obvious to him. "This would be a new and invincible argument for the existence of God; being a direct and positive proof that an immaterial living mind doth inform and actuate the dead matter, and support the frame of the world."[46]

Since Newton had established the laws of action at a distance and no one had been able to explain it as the result of ether or an effluvium, Bentley concluded that "we have great reason to affirm that universal gravitation, a thing certainly existent in nature, is above all mechanism and material causes, and proceeds from a higher principle, a divine energy and impression."[47] Bentley wished to cite Newton as an authority on this point, but Newton refused to be quoted on the cause of gravitation. However, he seems not to have taken serious exception to it, since he recommended Bentley's sermons to John Locke as reading preparatory to the *Principia*.[48]

In 1730, nine years before the appearance of Hume's *Treatise,* Andrew Baxter published an inquiry designed to prove the immateriality of the soul from the principles of reason and philosophy. He argued that the first law of motion was in itself sufficient to prove a whole new theory of matter, for that law meant to him that "a resistance to any change of its present state is essential to matter and inconsistent with any active power in it." Any tendencies to motion are, therefore, "not powers implanted in matter, or possible to be made inherent in it: but (therefore) impulse or force impressed upon it *ab extro*." They must, then, be due to the direct activity of the first cause.[49]

D'Alembert judged that "no philosophy is more favorable than that of Newton to the belief in a God. For how

---

[46] Bentley, *op. cit.,* III, 163.

[47] *Ibid.,* p. 165.

[48] James Henry Monk, *The Life of Richard Bentley,* I, 31.

[49] Andrew Baxter, *An Enquiry into the Nature of the Human Soul,* sec. i, also pp. 11 and 43.

can the particles of matter which have no motion in themselves, tend toward one another, unless that tendency has for its cause the omnipotent will of a sovereign mover? A Cartesian atheist is a philosopher who is false to his principles; a Newtonian atheist would be something still worse, an inconsistent philosopher."[50]

Theologians not only found the concept of gravitation a useful one, but they were able to draw theological conclusions from certain general aspects of the Newtonian system. In this they were in entire agreement with Newton himself, who, as a sincere theist, was concerned with the theological consequences of his own work. While he excluded such discussions from science, he entered into them willingly outside of that field.

In the correspondence with Richard Bentley, which was concerned with the latter's Boyle lectures, Newton agreed that the present system of the universe could not have come about without supernatural intervention. For illustration we may cite his statement on planetary motion. "I do not know any power in nature which could cause this transverse motion [of the planets] without the divine arm."[51]

Bentley had made use of this argument in the sixth and seventh of his Boyle lectures, given in 1692, on the argument for the existence of God drawn from the origin and frame of the world, where he stated that the planetary motions cannot be accounted for unless supernatural means are supposed.[52]

Newtonian science was not, however, always associated with a support of theism, but rather with an exactly opposite point of view. If forces existed in matter, there might be less need to use the deity as an explanatory principle. The exponents of this view quite naturally were less likely to state their position openly than were their oppo-

---

[50] Jean le Rond d'Alembert, "De l'abus de la critique," sec. vi of *Élémens de Philosophie, Oeuvres philosophiques, historiques, et littéraires,* I, 552.

[51] *The Correspondence of Richard Bentley, D. D.,* I, 61.

[52] Richard Bentley, *Works,* III, 165-171, 178 ff.

nents. The evidence that it was held by a considerable number is indirect but fairly conclusive.

Interesting corroboration is found in the criticisms directed against this view by writers who seldom mentioned the names of those whom they were attacking or answering. The Hutchinsonians, devoted to an attempt to find a natural philosophy in the Scriptures by means of metaphorical interpretation, were strongly opposed to Newtonian science on the ground that it was materialistic. Hutchinson believed a fantastic report that Newton and Clarke were in league to undermine the theology of the Bible by materialistic speculations. George Horne, a follower of Hutchinson, did not go so far, but he believed that a materialistic philosophy had arisen which found a basis in Newtonian principles. An important part of that materialism was the belief that matter had powers, and that the supposition of supernatural activity could therefore be dispensed with. According to the biographer of Horne, the Hutchinsonians believed that "it is no better than raving to give active powers to matter, supposing it capable of acting where it is not; and to affirm at the same time, that all matter is inert."[53] They could not "allow inert matter to be capable [as mind is] of active qualities but ascribe attraction, repulsion, etc., to subtle causes not immaterial."[54] Horne argued, as Berkeley did, that mathematical physics should describe phenomena without attempting to discover real causes. He believed that this was Newton's understanding of the matter and that the confusion arose from his unusual use of the word "attraction."[55]

E. Critics of Rationalism

The most able critic of the materialistic interpretation of science was the philosopher, George Berkeley. "We are not," he says in the *Siris,*

> therefore seriously to suppose with certain mechanic philosophers, that the minute particles of bodies have real forces or powers, by

[53] Jones, *op. cit.,* p. 32. [54] *Ibid.,* Preface, p. xix. [55] *Ibid.,* pp. 9-10, 40 ff.

which they act on each other, to produce the various phenomena in nature. . . .[56] Nor if we consider the proclivity of mankind to realize their notions, will it seem strange that mechanic philosophers and geometricians should, like other men, be misled by prejudice, and *take mathematical hypotheses for real beings existing in bodies,*[57] so far as even to make it the very aim and end of their science to compute or measure these phantoms: whereas it is very certain that nothing in truth can be measured or computed, besides the very effects or motions themselves. Sir Isaac Newton asks, "Have not the minute particles of bodies certain forces or power by which they act on one another, as well as on the particles of light for producing most of the phenomena of nature?" But in reality, these minute particles are only agitated, according to certain laws of nature, *by some other agent,* wherein the force exists, and not in them, which have only motion.[58]

While Berkeley may have misinterpreted Newton's query, it still seems probable that the type of philosophy which he was describing was not entirely a fiction of his imagination. Popularly, at least, forces were hypostasized, or, as Berkeley said, realized, as existent causes of motion. The motion of masses in absolute time and space was considered to be due, in part at least, to active principles resident in atoms. These forces, together with the masses which they animated and the space and time which were the scene of their activity, were beyond the reach of immediate discovery. They were inferred from experienced data but never themselves open to observation.

The most interesting criticism of the rationalistic technique by which either an underlying matter or a deity was inferred from the facts of nature, aside from that of Berkeley and Hume, came from a small group of divines, among whom were Peter Browne and Isaac Watts. The weapon to which they resorted was scepticism, arising from an analysis of the conceptions of contemporary science. With them scepticism cleared the ground for faith.

The title of Browne's chief work, *The Procedure, Extent, and Limits of the Human Understanding,* bears an inter-

---

[56] George Berkeley, *Works,* Fraser ed., II, 451.
[57] Italics mine.
[58] *Ibid.,* p. 458.

esting resemblance to that of Locke's essay, but his treatment of the question proposed was more consistent than Locke's, since he maintained the position of extreme sensationalism without resorting to rationalism to bridge the gap between appearance and reality.

Browne wished to justify the use of analogy in religious thinking and to confound thereby both enthusiasts and unbelievers. He argued that since ideas are images they can represent only the material. There can be no ideas of spirit but only notions, so that it is obviously impossible to infer the character of God directly by any strictly logical method. He can be known only by analogy. This argument was undoubtedly directed against the common rationalistic methods of the latitudinarians who were much concerned, as was Clarke, in demonstrating not only the existence but also the attributes of God.

While Browne was pointing to the conclusion that religion must be a matter of faith, he also directed an argument against the attempts to establish matter or nature in the place of a deity. All knowledge of nature, he argues, is experimental and cannot go behind the facts of experience. Mechanical reasoners attempt to account for qualitative facts by assuming that they are due to the varied configurations of an underlying matter, yet they never succeed in pointing out what configuration is responsible for any particular sensory quality. True causes are not revealed by such a technique.[59]

Isaac Watts, after considering various philosophical interpretations of the idea of space, found none of them tenable except that which would consider space an abstract idea referring to no distinct existence. From the dialectical difficulties of the subject he came to a conclusion like that of Browne that the most becoming attitude is one of humility with regard to the capacity of the human understanding.[60]

Such humility was scarcely evident in most of the

[59] Peter Browne, *op. cit.*, pp. 205-206, 208.
[60] Isaac Watts, *Philosophical Essays on Various Subjects.*

arguments of the early eighteenth century writers which this chapter has given in outline. Both those who believed that space, time, and forces were absolute realities, and those who attributed force to the direct activity of God, agreed that the causal principle could be extended to fields which direct experience of a sensory kind could never reach. The mathematical physicists, while they sometimes made unrecognized assumptions and used uncriticized concepts, were agreed in a rigidly empirical treatment of causation, within the field of science at least. Yet that conception of method was not extended to more philosophical problems. Where the natural philosopher could find no natural cause, the theologian assumed that it was legitimate to use the causal inference to arrive at entities which, by definition, were beyond verification, since they were never revealed as secondary qualities entering into human experience.

The concept of causation was conceived in a thoroughly rationalistic fashion by the greater number. Some cause was not only logically necessary for every event, but the character of the event revealed the nature of the cause even in the absence of other evidence. Apriorism had retreated from science but remained firmly entrenched in theology and philosophy.

Before Hume came to the problems thus raised and proposed his question as to the necessity of causation, Locke and Berkeley had dealt with them. We turn to their solutions as a most important factor in Hume's background.

CHAPTER III

REVERBERATIONS OF THE NEW SCIENCE IN PHILOSOPHY

When we examine the development of English philosophy in the light of what was taking place in the scientific world, it becomes very clear that most of the philosophical problems, at least in the particular form which they took, were suggested by science and its methods. A new history of modern philosophy might very well be written with this orientation.

We are interested here in tracing a small part of the relation between scientific concepts and philosophical problems. The question of the nature of causal explanation, which scientific discussions had aroused, was crucial also for philosophy, and we may discover an analogous development there.

A. John Locke

In Locke there is a pretty complete representation of Newtonian thought. The world of masses in absolute space and time is admitted; in contrast to it is the world of ideas, of secondary qualities. They alone are directly known, but their physical causes may be inferred. This dualism presents some difficulties which Locke thought could be easily resolved. The causal principle is assumed. Locke was too thoroughly in accord with reigning principles to give them any adequate criticism.

But he sometimes exhibited another attitude which led indirectly to a criticism of scientific dogmatism. Locke wished to free his own mind and the minds of others from the extremes of religious intolerance which had been the cause of so many of the political disturbances through which he had lived. He tried, therefore, to show that there is a variety of questions which can never be solved and conse-

quently should never be the basis for religious controversy. He was a sceptic in the interests of peace. We shall follow the arguments he used to establish this humane scepticism since they involved a discussion of the meaning of explanation and led to an unexpected analysis of empirical method.

Locke began his *Essay concerning the Human Understanding* with the question, About what problems can men profitably busy themselves? He finished it with the conclusion that they can know all they need to know for the practical business of living; but fortunately their needs for that purpose are few, since knowledge can go only a little way toward its ideal.

> The infinite wise contriver of us, and all things about us, hath fitted our senses, faculties, and organs to the conveniences of life and the business we have to do here. We are able by our senses to know, and distinguish things, and to examine them so far, as to apply them to our uses, and several ways to accommodate the exigencies of this life. We have insight enough into their wonderful contrivances, and wonderful effects, to admire and magnify the wisdom, power and goodness of their Author. But it appears not, that God intended we should have a perfect, clear, and adequate knowledge of them; that perhaps is not in the comprehension of any finite being. We are furnished with faculties (dull and weak as they are) to discover enough in the creatures to lead us to the knowledge of the Creator, and the knowledge of our duty; and we are fitted well enough with abilities, to provide for the conveniences of living; these are our business in this world.[1]

In his progress toward this conclusion he made use of the ideas of contemporary science, sometimes as unrecognized assumptions, sometimes as critically considered evidence. That science which in other men led rather generally to dogmatism and extreme claims for the power of reason, Locke found conducive to modesty of spirit with regard to the possibility of knowledge. His justification for this is interesting. He was sceptical about human reasoning because he could not find in empiricism the kind of explanation which he considered to be true knowledge. That is, he could discover no logical necessity among the facts which

---

[1] John Locke, *Essay concerning the Human Understanding*, Vol. I, Bk. II, chap. xxiii, sec. xii, p. 402.

empirical investigation disclosed. Therefore, he concluded that the mind could know very little indeed and with that must be content. Much as he felt himself to be an opponent of scholasticism, he still held to the notion of an a priori kind of knowledge. But that ideal of certainty made the attainments of empirical science seem puny and inadequate.

Locke's influence in England was chiefly in the direction of empiricism. This has somewhat obscured the fact that there was a strong rationalistic strain in him, and that his empiricism had a tinge of regret.

Discarding Locke's own terminology, we may say that he made, although he did not always maintain it, the distinction between dialectical and existential or factual truth. In the realm of dialectical truth entire certainty and universality can be reached, since no question of existence enters to complicate the problem. Systems of dialectical truth he calls science. He repeatedly refers to mathematics as the type of science in this sense.

> The mathematician considers the truth and properties belonging to a rectangle or circle only as they are in idea in his own mind. For 'tis possible he never found either of them existing mathematically, i.e., precisely true, in his life. But yet the knowledge he has of any truths or properties belonging to a circle, or any other mathematical figure, are nevertheless true and certain, even of real things existing: because real things are no further concerned, nor intended to be meant by any such proportions, than as things really agree to those archetypes in his mind. Whatever other figure exists that is not exactly answerable to the idea of that triangle in his mind is not at all concerned in that proportion.[2]

It is possible, then, to have universal truth in any dialectical field. Universal knowledge of matter of fact is possible only in so far as existences exemplify dialectical relations. The extent to which they do so cannot be determined a priori but only through experiment.

It is interesting to see that Locke believes that ethics is a dialectical science. After the discussion of mathematics from which we have just quoted, he adds:

[2] *Ibid.*, Vol. II, Bk. IV, chap. iv, sec. vi, p. 231.

And hence it follows, that moral knowledge is as capable of real certainty, as mathematics. For certainty being but the perception of the agreement, or disagreement of our ideas: and demonstration nothing but the perception of such agreement, by the intervention of other ideas, or mediums, our moral ideas, as well as mathematical, being Archetypes themselves, and so adequate and complete ideas, all the agreement, or disagreement, which we shall find in them, will produce real knowledge, as well as in mathematical figures.[3] (As we shall see, Hume objected pointedly to this treatment of ethics.)

Yet Locke was not interested primarily in such realms of dialectical truth but in matters of fact, in truths that relate to existence. He suggests an objection to his own theory of truth by way of ideas:

It matters not what men's fancies are, 'tis the knowledge of things that is only to be prized; 'tis this alone gives a value to our reasoning and preference to one man's knowledge over another's, that 'tis of things as they really are, and not of dreams and fancies.

To which I answer, that if our knowledge of our ideas terminate in them, and reach no farther, where there is something farther intended, our most serious thoughts will be of little more use, than the reveries of a crazy brain; and the truths built thereon of no more weight than the discourses of a man, who sees things clearly in a dream and with great assurance utters them. But, I hope, before I have done to make it evident, that this way of certainty, by the knowledge of our own ideas, goes a little farther than bare imagination; and I believe it will appear, that all the certainty of general truths a man has, lies in nothing else.[4]

What then has he to say of the knowledge of things? We need not consider the well-known formal answer by which he tries to escape the sceptical consequences of dualism. There is a more significant reply in his treatment of natural philosophy. Natural philosophy, according to Locke, is of course not science, for it goes beyond a dialectical knowledge to the existence of things. But the knowledge of things (with the exception of the self and of God) is sensitive knowledge and, therefore, only of particulars. Yet natural philosophy goes far beyond particulars; it claims generality, and generality is never experienced, it

[3] *Ibid.*, Bk. IV, chap. iv, sec. vii, p. 232.
[4] *Ibid.*, Bk. IV, chap. iv, sec. ii, pp. 227-228.

is always an abstraction from the particulars of sense. Natural science, in so far as it is universal, becomes dialectical and is no longer a certain representation of reality. It remains a hybrid between real knowledge of existence and dialectical development of that knowledge.

How is the difficulty to be avoided, if at all? We have already seen Locke's treatment of the application of mathematics to physical fact. Mathematical relations are true of existence in so far as things behave according to the archetypes of pure mathematics. How far that may be true cannot be determined a priori, but must be discovered in experience.

What then of the non-mathematical qualities of things? What kind of knowledge can be had of what Locke calls the coexistence of qualities and powers? Can it ever reach true generality? At this point we reach the center of Locke's scepticism. He concludes that no such demonstrative science is possible because there is no *discoverable logical connection* among the qualities which make up an object. We are confined, therefore, to a mere sensitive knowledge of individual matters of fact. The generalizations of physics and astronomy, except as they are mathematical, are only arguments by *analogy* based upon repeated experience.

This scepticism is curiously illustrated in Locke's treatment of essences. He had rejected the scholastic categories of substance and essence as being useless but inevitable ideas, yet, in reality, both categories are present in his essay in the modern guise of matter with its primary qualities. Essence is defined as

> the measure and boundary of each sort, or species, whereby it is constituted that particular sort, and distinguished from others. It is nothing but that abstract idea to which the name is annexed: so that everything contained in that idea is essential to that sort. This, though it be all the essence of natural substance, that we know, or by which we distinguish them into sorts; yet I call it by a peculiar name, the nominal essence, to distinguish it from that real constitution of substance, upon which depends this nominal essence, and all the properties of that sort; which, therefore, as has been said, may be called the real essence: v.g. the nominal essence of gold is that complex idea

that the word gold stands for, let it be, for instance, a body yellow, of a certain weight, malleable, fusible and fixed. But the real essence is the constitution of the insensible parts of that body, on which those qualities and all the other properties of gold depend.[5]

That is, the nominal essence of gold includes that group of secondary qualities by which it is defined and classified. Its real essence is the constitution of insensible parts, the primary qualities upon which the secondary depend.

Locke believed that this relation between real and nominal esence was one of logical implication.

I doubt not but if we could discover the figure, size, texture and motion of the minute constituent parts of any two bodies, we should know *without trial* several of their operations upon another, *as we do now the properties of a square or a triangle*.[6] Did we know the mechanical affections of the particles of rhubarb, hemlock, opium, and a man, as a watch maker does those of a watch, whereby it performs its operations . . . we should be able to tell beforehand that rhubarb will purge, hemlock kill, and opium make a man sleep, as well as a watch maker can, that a little piece of paper laid on the balance will keep the watch from going, till it be removed; or that some small part of it, being rubbed by a file, the machine would quite lose its motion, and the watch go no more.[7]

Here Locke has substituted for an unknown essence the scientific conception of the qualities of matter, meaning thereby the primary or mathematical qualities of things. And he believes that the relation between this matter and its qualities is a logical one; if knowledge of primary qualities were adequate, we could deduce from them at least part of their effects without trial. We could determine a priori that rhubarb will purge, hemlock kill, and opium make a man sleep! An astonishing belief stated in the midst of a defense of empiricism!

Since a universe logically coherent, in part at least, is admitted, why is natural science condemned to a halting empiricism? Obviously the difficulty for Locke must lie,

---

[5] Locke, *Essay concerning the Human Understanding,* Vol. II, Bk. III, chap. vi, sec. ii, p. 57.

[6] Italics mine.

[7] *Ibid.,* Bk. IV, chap. iii, sec. xxv, pp. 216-217.

partly at least, in the human mind. The knowledge required to render natural philosophy a science Locke calls a knowledge of the necessary coexistence of the qualities and powers of bodies. Now secondary qualities, or the simple ideas which go to make up the complex ideas of substance, we find coexisting, but there is no visible necessary connection among them. They do not imply each other, nor is there any discernible reason why one group of qualities should be conjoined rather than another.[8]

When we go a step further to examine the connection between secondary qualities and the primary ones on which they seem to depend, we find ourselves in the same predicament. Our minds are not able to discover any connection between the primary qualities and the sensations which they produce in us. The powers of bodies to produce effects in others are partly demonstrable. Yet even here we can go only a little way. The reason is definitely stated. The difficulty lies in the weakness of human faculties rather than in lack of necessary connection among things themselves.

> The active and passive powers of bodies, and their ways of operating, consisting in a texture and motion of parts, which we cannot by any means come to discover: 'tis but in very few cases, we can be able to perceive their dependence on, or repugnance to any of those ideas, which make our complex one of that sort of things. I have here instanced in the corpuscularian hypothesis, as that which is thought to go farthest in an intelligible explication of the qualities of bodies; and I fear the weakness of human understanding is scarce able to substitute another, which will afford us a fuller and clearer discovery of the necessary connection, and coexistence, of the powers, which are to be observed united in several sorts of them. This at least is certain, that whichever hypothesis be clearest and truest, . . . our knowledge concerning corporeal substances, will be very little advanced by any of them, till we are made to see what qualities and powers of bodies have a necessary connection or repugnancy one with another; which in the present state of philosophy, I think, we know but to a very small degree: and, I doubt, whether with those faculties we have, we shall be able to carry our general knowledge . . . in this much farther. Experience is that, which in this part we must depend on.[9]

[8] *Ibid.*, Bk. IV, chap. iii, secs. x-xi, pp. 200-201.
[9] *Ibid.*, sec. xvi, pp. 205-206.

In succeeding sections[10] Locke reiterates the point that the weakness of human faculties is too great to gain a sufficient number of accurate impressions to make a real knowledge of objects possible. Some things are too remote, others, such as the individual particles which go to make up bodies, are too minute for us to discover.

The conclusion of the whole matter is that natural philosophy must depend upon experience. In the strict sense it is not knowledge at all, and it behooves the natural philosopher to avoid dogmatism and extravagant claims to knowledge.

There is one ambiguity to be noted. While Locke definitely assigns the weakness of the human intellect as the reason for lack of knowledge of the necessary connection between primary and secondary qualities, he nowhere definitely states the same reason for the failure to find logical relations among secondary qualities themselves. Without that statement we can only say that he believed that there is at least some necessary connection among the facts of the physical world but that a knowledge of it is impossible for the human mind to attain.

The *Essay concerning the Human Understanding* stands, then, in an interesting and complex relation to the developing science of the period. Locke felt the prevailing enthusiasm for the new methods which had led in his own day to the brilliant success of Newton. He accepted, too, the metaphysical suppositions that had developed in connection with the growth of mathematical astronomy and physics.

Locke also mirrored the state of transition from the use of medieval to modern categories. The Newtonians had banished the ideal of a priori explanation from physics. Locke accepted the banishment with some reluctance and attributed the necessity for it to the weakness of the human understanding, which is unable to pierce to the necessary relations among things. But if the principle of necessity

[10] *Ibid.*, Bk. IV, chap. iii, sec. xxiii-xxx, pp. 213-224.

must be surrendered in physics, it need not be discarded in philosophy. Locke never doubted the necessity of a first cause nor hesitated to infer the existence of a world of masses in absolute space and time as the reality underlying all appearances.

Locke's scepticism made explicit the distinction between a priori and empirical explanation as it related to science. His immediate successors could hardly fail to be impressed with the problem of causation. It is at the center of Berkeley's system and the subject of Hume's great "discovery."

B. George Berkeley

In contrast with Locke, Berkeley was fully conscious of his own relation to mechanical science.

"I know," he says early in the *Commonplace Book,* "there is a mighty sect of men will oppose me, but yet I may expect to be supported by those whose minds are not so far overgrown with madness. These are far the greatest part of mankind—especially Moralists, Divines, Politicians; in a word all but Mathematicians and Natural Philosophers (I mean only the hypothetical gentlemen). Experimental Philosophers have nothing whereat to be offended in me."[11]

Just who the "hypothetical gentlemen" were we are never informed. There is, of course, the story told to account for the writing of the *Querist,* that Berkeley's argument was directed against Halley, the mathematician, whose atheism he heard of from Addison. But this story seems apocryphal.

However, Berkeley describes so well the position he is attacking that we can surmise who its defenders were—a large part of the natural philosophers of the day. Berkeley's object is to overthrow materialism, the supposition that an underlying, unknown matter is the cause of changes in the natural world. Since this was the accepted position among scientific men, none of them were wholly exempt

[11] Berkeley, *Life, Letters, and Unpublished Writings,* p. 420.

from Berkeley's criticism. It may be that very few of them drew the extreme conclusions which followed from their main tenet, those conclusions which Berkeley believed were so dangerous to "morality and revealed religion."

Newton comes under Berkeley's censure only in so far as he is a mathematician and a "hypothetical gentleman." Berkeley insists that the significant empirical work of Newton illustrates his own position, and that it could have been achieved without the supposition of an underlying matter or the use of the infinitesimal calculus.

Berkeley, of course, recognizes that in many respects his own principle has developed along lines suggested by John Locke. But as time goes on he finds more and more in Locke's *Essay* which tends away from empiricism to the materialistic hypothesis. Consequently, he finally rejects as much as he retains and comes to feel that he is alone against the learned world.

Berkeley's principle of subjectivism, his use of the term "idea" with all of its psychological associations has, in a measure, obscured the fact that his significant contribution to philosophy was an analysis of the rationale of empirical method. That fact may be discovered even in the *Principles* with its ingenious development of the doctrine that *esse est percipi* where the element of subjectivism is most difficult to ignore. For Berkeley insisted even there that the immediate qualities of things are what they are, whether they be called ideas or things. "By the principles premised we are not deprived of any thing in nature. Whatever we see, feel, hear, or any wise conceive or understand, remains as secure as ever, and is as real as ever."[12]

It has become a commonplace that the principle, *esse est percipi aut percipere,* was not directed against the everyday belief in material objects but against an unknowable matter lurking beneath. We might then safely use the *Principles* in considering Berkeley's attitude toward the

[12] George Berkeley, *Principles of Human Knowledge,* sec. xxxiv, Vol. I of *Works,* p. 173.

questions raised by science, ignoring the subjective connotations of his statement.

But Berkeley has simplified the matter in *De Motu* where he states his objections to a philosophy of matter without once referring to his doctrine of ideas. The impressions gained from reading this formal essay are reinforced by the piquant fragments of the *Commonplace Book* and by the *Siris* and Berkeley's correspondence with Samuel Johnson of New Haven.

We may note first, however, that Berkeley's chief claim for his principle that unperceived matter cannot exist is that it does away with scepticism. And by scepticism he meant not only religious infidelity but that scepticism regarding knowledge that he found in Descartes, and that we have noted in Locke.

> It is said the faculties we have are few, and those designed by nature for the support and pleasure of life, and not to penetrate the inward essence and constitution of things. . . . But perhaps, we may be too partial to ourselves in placing the fault originally in our faculties, and not rather in the wrong use we make of them. It is a hard thing to suppose that right deductions from true principles should ever end in consequences which cannot be maintained or be made consistent. . . . Upon the whole, I am inclined to think that the far greater part, if not all, of those difficulties which have hitherto amused philosophers, and blocked up the way to knowledge, are entirely owing to ourselves—that we have first raised a dust and then claim we cannot see.[13]

In order to dispel that dust it is necessary to analyze those concepts so commonly used in natural philosophy, to determine what significance they can possibly have in the contexts in which they are used. What, for instance, is gravity? *vis inertiae*? To what observable facts do they refer? Are their objects myths, beyond the reach of human discovery?

Gravitation is the first to be analyzed. We daily discover, says Berkeley, that when we hold heavy objects we do so only with effort and consequent fatigue. It is equally

[13] *Ibid.*, secs. ii, iii, pp. 137-138.

a matter of sensory experience that unsupported bodies fall toward the earth. What, then, is the cause of these phenomena? It is commonly assumed to be something called gravity. But this cause is never directly sensed in itself; it is never given as a datum. It is therefore rightly called an occult quality. But the very name "occult" shows that such a quality cannot be made intelligible, since it never comes into the realm of human discovery.[14] The same is true of force, of action, and of attraction.[15]

Berkeley concludes that, in the interests of intelligibility, it would be better to leave such occult qualities out of account and to turn back to the facts presented in sense. "It is evident therefore that it is vain to cite gravity or force as the principle of motion; for can that principle be more clearly known from what is called an occult quality? That which is itself occult, explains nothing."[16]

If such terms as "gravity" and "force" are to have any value, they must be used in a different sense. They may be profitably employed to indicate concrete situations, the regularities discoverable in phenomena.

> Power, gravity, and such words may be wisely and not inaptly used, to connote concretely the motion of bodies, the difficulty of resisting, etc. It is only when used by philosophers to indicate natures abstracted from these, which are open neither to the senses, the intelligence, or the imagination that they lead to errors and confusion.[17]

But power and gravity have been invoked as causes to explain motion. Is the cause of motion, then, beyond the scope of natural science? Again Berkeley's answer is that it depends upon what is understood by the terms. In this case it is necessary to ask what a cause is. Real power or causation, according to Berkeley, is synonymous with self-initiated activity—with life itself. In this sense no causes are discoverable in the world of objects. In the *Principles*

---

[14] *De Motu*, sec. iv., in *Works*, III, 77. The translations from the *De Motu* are my own.
[15] *Ibid.*, secs. i-xxix, pp. 75-84.
[16] *Ibid.*, sec. vi, p. 77.
[17] *Ibid.*

Berkeley merely states as too obvious for doubt that ideas —i.e., all objects of sense and imagination—are inert.[18] In the *De Motu* there is some attempt at proof.

Withdraw from the idea of body extension, solidity and figure, and nothing remains. But these qualities are indifferent to motion nor have they in themselves, anything which could be said to be the principle of motion. This is evident from our very ideas of them. If therefore by the name body is meant that which we conceive, it plainly follows that the principle of motion cannot be sought there.[19]

Scientists admit this when they state the first law of motion. No moving body can change its own motion either in quantity or direction.

Those who attribute a vital principle to bodies conceive something obscure and but little suited to the facts. For what does it mean to possess a vital principle if not to live? or to live if not to move, sustain and change its own state? The most learned philosophers of this age hold it to be an indubitable principle that all bodies persevere in their state either of quiet or uniform motion in a straight line, unless it is known that something else changes that state.[20]

If, then, we have recourse to other principles in bodies than those of extension and solidity with their modifications in order to explain the facts of motion, we are again appealing to occult qualities which are unintelligible in themselves and can render nothing else clear.

Whenever, for explaining the cause and origin of motion either an hylarchical principle, a want in nature, an appetite, or any natural instinct is used it should be admitted that something has been said rather than understood. Nor are they far from this who suppose that "the parts of earth are self moving, or that spirits are implanted in them in the same way that forms are" (Borellus) in order that they may assign a cause for the acceleration of falling bodies, or those who say, that "in body, there must be something besides solid extension whence the consideration of forces may be drawn" (Leibniz). All these either say nothing particular and determinant, or if anything it would be as difficult to explain as that which it is adduced to account for.[21]

---

[18] *Principles of Human Knowledge,* sec. xxv, p. 168.
[19] *De Motu,* sec. xxix, p. 84.
[20] *Ibid.,* sec. xxx, p. 86.
[21] *Ibid.,* sec. xx, p. 81.

We have seen that MacLaurin and others among the scientific followers of Newton had tried to avoid this reference to occult qualities by considering gravitation as an ultimate order in nature not deducible from the qualities found in matter isolated from that order. Newton at times inclined to that view, although as his discussions of the functions of ether show, he never gave up the hope of reducing the phenomena of gravitation to mechanical terms. The recognition of order as an ultimate characteristic of the universe showed a thoroughly empirical spirit very remote from the hypostasizing tendency which Berkeley opposed. There is, however, no indication in the *De Motu* that Berkeley knew of such treatments, or, if he knew of them, that he recognized their likeness to one part of his own solution.

Berkeley's conclusion was curiously dualistic; it established empiricism as the sole method of natural philosophy and supernaturalism as the necessary metaphysical position. In order to see clearly the first of these results it will be worth while to quote somewhat extensively Berkeley's statements on the meaning of mechanical explanation.

> Much remains to be concluded as to what a principle properly is, and in what sense that word should be understood among philosophers. Indeed a cause truly efficient and conserving all things is justly called their source and principle. The principles of experimental philosophy may be said to be the foundations on which that philosophy arises, or the sources from which is derived the knowledge (I do not say the existence) of corporeal things, *sense* and *experience*.[22]

Similarly, in mechanical philosophy those principles on which is based general knowledge, those primary laws of motion approved by experience are improved by reasoning and rendered universal. These laws of motion may well be called principles, since from them general mechanical theorems, as well as explanations of particular phenomena, are derived.

---

[22] Italics mine.

> The human mind rejoices when it can extend and expand its knowledge. For this purpose general notions and propositions are enunciated, in which are contained in some way propositions and particular beliefs. These then are believed to be understood when they can be deduced by logical steps from the first principles. This is notable in geometry. In mechanics, notions are postulated, that is, definitions and general statements are laid down, concerning motion from which, by subsequent mathematical operations, conclusions more remote and less general are arrived at. And just as, by the application of geometrical theorems the magnitudes of particular bodies are measured; so by the application of the universal propositions of mechanics, the motions of any of the parts of the physical system and the phenomena depending on them may be known and determined: within this scope physics should be confined.[23]

The principles of natural science are, then, the sources from which that body of knowledge is derived. In a general way those principles may be said to be sense and experience; more specifically, they are the laws of motion discovered in experience. The phenomena of motion may be generalized in the forms of laws, and deductions from them will lead back again to particulars of sense experience.

This conception has become so common since the time of Berkeley that it is difficult to feel its significance unless we keep in mind the confusion which had led, among other things, to a use of the word "principles" to mean unknown properties of matter. Berkeley refers to this in parenthesis in the quotation given above. Principles are not elements from which existence unfolds—e.g., gravity and *vis inertiae* were sometimes called the principles of motion—but definitions and propositions based on experience, from which ordered knowledge develops.

Two of Berkeley's illustrations will make the point clearer. The first is from the discussion of action and reaction. It is a fact of experience that when one body strikes another, the first loses, and the second gains, motion. Now, according to Berkeley, it makes little difference how that fact is stated so long as the fact is not obscured, nor hypothetical entities introduced as real. In mechanical

[23] *De Motu*, secs. xxvi, xxviii, pp. 87-88.

physics we may employ the most useful formula, since the choice is a matter of convenience.

With reference to gravitation Berkeley takes a similar position, although there is no one complete statement of it in his works. In section xi of the *De Motu* he argues that gravitation cannot be conceived except as motion. This point had been referred to in the *Commonplace Book* and in the *Principles* and was later stated in a letter to Samuel Johnson in America. The latter statement is most interesting, for it not only gives the application of Berkeley's principles to the question of gravitation, but it furnishes an interesting argument used to prove the existence of absolute mass.

> The true use and end of natural philosophy is to explain phenomena of nature, which is done by discovering the laws of nature, and reducing particular appearances to them. This is Sir Isaac Newton's method; and such method or design is not in the least inconsistent with the principles I lay down. . . . It must be owned, indeed, that the mechanical philosophers do suppose (tho' unnecessarily) the being of matter. They do even pretend to demonstrate that matter is proportional to gravity, which if they could, this indeed would furnish an unanswerable objection. But let us examine their demonstration. It is laid down in the first place, that the momentum of any body is the product of its quantity by its velocity, *moles in celeritatem ducta.* If, therefore, the velocity is given, the momentum will be as its quantity. But it is observed that bodies of all kind descend *in vacuo* with the same velocity; therefore the momentum of descending bodies is as the quantity or *moles,* i.e., gravity is as matter. But this argument concludes nothing and is a mere circle. For I ask, when it is premised that the momentum is equal to the *moles in celeritatem ducta,* how the moles or quantity of matter is estimated. If you say by extent, the proposition is not true; if by weight, then you suppose that the quantity of matter is proportional to matter; i.e., the conclusion is taken for granted in one of the premises.[24]

The conclusion is, as Berkeley says in the *Commonplace Book,* that gravity is proportional to gravity and can be described only in terms of motion.

---

[24] Quoted by Fraser in *Life, Letters, and Unpublished Writings of George Berkeley,* pp. 179-180, from the appendix of Thomas B. Chandler's *Life of Samuel Johnson* (New York and London, 1824).

And so Berkeley attacks at every point except one, to be noted later, that universe of masses, moving in absolute space and time which had been set up as the "reality" lying behind "phenomena." He attempts what is virtually a restoration of the older ways of philosophy, a turning to metaphysical analysis away from the newer physics. For him laws and principles, matter, force, time, and space are the legitimate results of metaphysical analysis; they are never to be thought of as existence distinct from the facts they explain or describe. To hypostasize them is to make them irrelevant to facts and to set up a necessary scepticism. Berkeley defines the position of natural science; its province is to discover uniformities in nature from which particulars may be reasonably deduced.

If we ask how far he believed such deduction could go, we immediately come upon his conception of causation which, indeed, is suggested throughout his discussion and is the mainspring of his metaphysics. It is from this point of approach that it stands out most significantly.

In the *Principles* Berkeley states what he takes to be the limitation of natural science in the proper application of its own method. From the general laws of nature particulars may be reasonably deduced, but such deduction is not absolute demonstration, for demonstration would involve the assumption that the order of nature is of a piece throughout; that what holds of a few observed facts must hold of all. This, however, Berkeley does not admit. To be sure, nature is a vast system of signs, and it is the practical business of all men and the theoretical task of scientists to discover what things signify. But the kind of significance which things have is not that of logical implication. Berkeley could never agree with Locke that if we knew intimately some of the secrets of nature, we could deduce from them its other characters "without trial." No, for one is significant of others as words are of things, by arbitrary association. Nature is a language and therefore it must be learned. Its syntax may be grasped and applied, but we

never can assume that the law goes further than we have had experience of it. And the language might have been different had its divine creator wished to make it so.

This of course is the significant point of Berkeley's early essay on *The Theory of Vision,* and it is repeatedly stated in the *Principles*. After a discussion of gravitation in the latter, he says:

> If therefore we consider the difference there is betwixt natural philosophers and other men, with regard to their knowledge of the phenomena, we shall find it consists not in an exacter knowledge of the efficient cause that produces them, for that can be no other than the *Will of a Spirit*—but only in a greater largeness of comprehension, whereby analogies, harmonies, and agreements are discovered in the works of nature, and the particular effects explained, that is, reduced to general rules, which rules, grounded on the analogy and uniformness observed in the production of natural effects, are most agreeable and sought after by the mind; for that they extend our prospect beyond what is present and near to us, and enable us to make very probable conjectures touching things that may have happened at very great distances of time and place, as well as to predict things to come; . . .
>
> But we should proceed warily in such things, for we are apt to lay too great a stress on analogies, and, to the prejudice of truth, humor that eagerness of the mind whereby it is carried to extend its knowledge into general theorems.
>
> By a diligent observation of the phenomena within our view, we may discover the general laws of nature, and from them deduce the other phenomena; I do not say *demonstrate,* for all deductions of that kind depend on a supposition that the Author of Nature always operates uniformly, and in a constant observance of those rules we take for principles—which we cannot evidently know.[25]

Locke had assumed a universe of logical implication and regretted that the human mind could not grasp it. Berkeley regretted nothing, for he denied the assumption. In his own terms, there is no need for scepticism. The natural world is one of which contingent knowledge only can possibly be had, for it depends on the will of its Author.

Necessity is here ruled out, but again, as with Newton and Locke, of one necessity Berkeley had no more doubt:

---

[25] *Principles of Human Knowledge,* secs. 105 and 107, II, 209-211.

the necessity of a "real cause." The world is after all phenomenal; back of it lies a reality, not matter, to be sure, but spirit. The assumption of cause is so fixed in Berkeley's mind that for him it needs no defense, hardly even a statement. But presupposing cause, he believed that experience did furnish evidence of its nature. We are directly conscious of causation within ourselves in the creative force of will. Since no other causality is ever discovered, it must follow that the reality which produces the universe is the same kind—a spirit. Here is the true *force,* real, efficient power.

This aspect of Berkeley's philosophy is too familiar to need elaboration. It would be interesting to know whether he was influenced at this point by contemporary conceptions of force. There is little evidence, but it seems probable that the belief in cause directly evident in consciousness was a theological tenet. At any rate, it did not occur to Berkeley to subject it to the same kind of analysis which he gave to other categories of science and metaphysics. He, however, cites Newton as among those wisest philosophers of all the ages who agree with him. "And Newton does not obscurely intimate that, not only was motion initiated by spirit but that even now the system of the world is moved by him."[26]

Berkeley had disposed so intelligently of that philosophy which turned principles into things that he made his own questionable use of universal causation stand out the more clearly.

From the mass of discussion, scientific and philosophic, between the years 1690 and 1720 the question as to the nature of causation emerged finally as the distinctive problem for any mind critical of a priori rationalism. So, at least, it seemed to Hume. Science and theology had prepared the way for his question, "Why a cause is necessary?"

---

[26] *De Motu,* sec. xxxii, pp. 85-86.

CHAPTER IV

HUME'S EMPIRICISM IN RELATION TO CONTEMPORARY SCIENCE AND PHILOSOPHY

A. Hume's Knowledge of the Current Discussions of Science

Both Locke and Berkeley had made it clear that their discussions were directly influenced by developments in science and theology. Both were, at times, openly polemical; Locke's attack on innate ideas was directed against the Cartesians, and Berkeley's arguments concerning the existence of matter and its infinite divisibility were meant to refute the mathematicians and "hypothetical gentlemen" of science.

Hume, however, gives us less help of this kind when we attempt to distinguish the immediate bearing of his arguments. He is distinctly the man of letters, concerned with all topics of current interest from that point of view, but anxious to avoid even the appearance of polemical writing. His references to other authors are, for the most part, simply passing literary allusions, the conventional references of the eighteenth century authors with the classic background of the schools. He refers, for instance, to Seneca, Plutarch, Longinus, and Virgil, among others. In addition, French literary men are occasionally mentioned, Montaigne, La Bruyère, Fénelon, and Boileau. Aside from such literary allusions, the references to names are few. They do indicate, however, rather significantly, both the breadth and the character of Hume's reading, and they throw some light upon his knowledge of contemporary discussions. We may note, in passing, that the most specific references are in the discussion of morals. There Hume is

definitely opposing the point of view of a school and does not hesitate to name its members.[1]

What, then, are the references in the more metaphysical parts of his work? As we should expect, Locke and Berkeley are the names most frequently mentioned, and, as we shall note later, Hume's argument has constant reference to them even where they are not mentioned specifically. The Cartesians, Malebranche in particular, are referred to upon several points, but Hobbes is mentioned only once. There is in the *Treatise* a discussion of Spinozism, but the only direct reference is to the article on Spinoza in Bayle's dictionary.

Perhaps the references most significant for this discussion are of another kind, however, showing that Hume had some direct acquaintance with scientific and mathematical works. He knew, for example, Galileo's *Dialogue concerning the Two Great Systems of the World* and quoted from Newton's *Principia*. In his discussion of mathematics he referred not only to *Éléments de géométrie de M. le duc de Bourgogne* by Mgr. Malezieu but to the *Mathematical Lectures* of Dr. Barrow.[2] There is a direct evidence, too, that Hume knew the disputes on the borderland of science and theology. He had read the sermons on miracles of Tillotson; he quotes Cudworth and Clarke on causation; there is reference in his correspondence to the dispute between Nicole and Mgr. Claude concerning the rôle of reason in Catholicism and Protestantism.[3] There are, in addition, frequent references of the kind so common in Bayle's dictionary, as well as elsewhere, to "materialists" and "modern metaphysicians," "philosophers of the

---

[1] Cf. *infra*, chap. v.

[2] For reference to Galileo, see *Dialogues concerning Natural Religion*, in Green and Grose edition of *Treatise and Dialogues*, II, 399-400; for Newton, *Treatise*, Bk. I, part ii, sec. v, Vol. I of *Works*, p. 368; for Malezieu, *ibid.*, sec. ii, p. 337; and for Barrows, *ibid.*, sec. iv, pp. 351-352.

[3] Tillotson is mentioned in the *Enquiry*, sec. x, "Of Miracles," the opening sentence; Cudworth and Clarke, in the *Enquiry*, sec. vii, footnote following part i; and Clarke in the *Treatise*, Bk. I, part iii, sec. iii, I, 382; Nicole and Mgr. Claude in John Hill Burton, *Life and Correspondence of David Hume*, I, 325.

schools," "academic sceptics," and "Pyrrhonians," where the reader's understanding of the allusion is taken for granted. And finally there are references to two of the most interesting of the "modern" sceptics, Huet and Bayle.[4]

This scattering of names, taken alone, indicates little more than that Hume had the kind of acquaintance with the books of his day that we should expect of a man of letters whose main devotion was to philosophy. He knew directly some of the great scientific works which occupied so important a place in the intellectual life of his time; he had more intimate knowledge of the philosophic traditon which had developed in the interpretation of science.

The internal evidence which the *Treatise* and *Enquiry* furnish bears out this view. We turn first to those passages which give evidence that Hume directed his criticism not only against the arguments of the theologians and moralists but also against what he took to be the philosophic bearings of contemporary science. The most conspicuous illustration is found in the discussion of space and time. The presence of that discussion in the *Treatise* is in itself arresting. It furnishes the strongest evidence that Hume meant to apply his empirical principle to the problems raised by science. The sections on space and time have little organic relation to the main argument of the *Treatise;* they have no place there at all if the work were meant to discuss only the traditional questions of philosophy. Their presence shows that Hume, in this case at least, was directly concerned with the interpretation of science.

It will not be necessary to go into his argument in detail. It is sufficient to note two things with reference to it. First, Hume opposes the argument of Locke, and second, he takes a position much like that of Berkeley and Leibniz. Space and time, he argues, are not existing entities but are relations among objects and events. There is, furthermore,

---

[4] Huet is referred to in the *Dialogues,* II, 388. The most interesting reference to Bayle is found in the *Treatise,* Bk. I, part iv, sec. v, I, 526, where Hume criticizes his argument against Spinoza.

an interesting treatment of mathematics and the problems of the infinite divisibility of space, time, and matter. The latter had been a part of the Cartesian physics and was incompatible with the atomism commonly accepted by British scientists. Newton's method of fluxions, the infinitesimal calculus, seemed to many to imply the assumption of infinite divisibility. Mathematicians, of course, did not pause to explain that when they spoke of space as infinitely divisible, they were referring to a methodological principle rather than to a physical procedure. As in the case of force, noted in the preceding chapters, what was meant for an instrument was interpreted as a literal description of physical fact. Berkeley accused Newton of belief in infinite divisibility and attacked it. Hume does not make his accusation specific. According to him it is the "mathematicians" who have produced this doctrine, so absurd that it can lead only to scepticism. We shall follow his discussion in some detail here because it affords an excellent illustration of his interest in science as well as of his empirical method.

With regard to infinite divisibility of space and time, the gist of Hume's argument in the *Treatise* is that so long as we make experience the test of truth we have no conception of infinite divisibility. The supposed idea of it corresponds to no impression, that is, to no reality. So long as we remain within the empirical field, the only one of which we can really have ideas, we must think of extension as made up of a finite number of parts. Experienced space is not infinitely divisible.[5]

In the *Treatise* Hume's criticism of the doctrine of the infinite divisibility of extension is part of an elaborate attempt to establish geometry as an empirical rather than a dialectical science. He argues that since it is such an empirical science, none of its pronouncements can be taken as authoritative except in so far as they are in harmony with our experience of existing space relations.

[5] *Treatise,* Bk. I, part ii, sec. ii.

I would fain ask any mathematician what infallible assurance he has, not only of the more intricate and obscure propositions of his science, but of the most vulgar and obvious principles? How can he prove to me, for instance, that two right lines cannot have one common segment? Or that 'tis impossible to draw more than one right line betwixt any two points? Should he tell me, that those opinions are obviously absurd, and repugnant to our clear ideas; I would answer, that I do not deny, where two right lines incline upon each other with a sensible angle, but 'tis absurd to imagine them to have a common segment. But supposing these two lines to approach at the rate of an inch in twenty leagues, I perceive no absurdity in asserting, that upon their contact they become one. . . . The original standard of a right line is in reality nothing but a certain general appearance; and 'tis evident right lines may be made to concur with each other, and yet correspond to this standard, tho' corrected by all the means either practicable or imaginable.[6]

In the *Enquiry* Hume's position is very different. After his well-known statement that "all the objects of human reason or enquiry may naturally be divided into two kinds, to wit, Relations of Ideas, and Matters of Fact," he goes on to the following classification:

Of the first kind are the sciences of Geometry, Algebra, and Arithmetic; and in short, every affirmation which is either intuitively or demonstratively certain. *That the square of the Hypothenuse is equal to the square of the two sides,* is a proposition which expresses a relation between these figures. *That three times five is equal to the half of thirty,* expresses a relation between these numbers. Propositions of this kind are discoverable by the mere operation of thought without dependence on what is anywhere existent in the universe. Though there never were a circle or triangle in nature, the truths demonstrated by Euclid would forever retain their certainty and evidence.[7]

Although Hume here adopts a less extreme view of mathematics, he is at pains to add that geometry, even when so defined, cannot be used as a technique for the a priori discovery of the existence of objects.

Nor is geometry, when taken into the assistance of natural philosophy, ever able . . . to lead us into the knowledge of ultimate causes, by all that accuracy for which it is so justly celebrated. Every part of mixed mathematics proceeds upon the supposition that certain laws

[6] *Ibid.,* sec. iv, p. 356.
[7] *Enquiry,* sec. iv, part i, sec. 20, p. 25.

are established by nature in her operations; and abstract reasonings are employed, either to assist experience in the discovery of these laws, or to determine their influence in particular instances, where it depends upon any precise degree of distance and quantity.[8]

Berkeley had argued that mathematics is no friend to infidelity; Hume was equally anxious to show that it is no friend to superempiricism in science.

Having accepted the definition of geometry as a dialectical science, Hume is compelled to revise his treatment of infinite divisibility. He now finds the arguments concerning it to be one of the best grounds for scepticism. He can find no flaw in them and yet cannot believe the result.

No priestly dogmas, invented on purpose to tame and subdue the rebellious reason of mankind, ever shocked common sense more than the doctrine of the infinite divisibility of extension, with its consequences; as they are pompously displayed by all geometricians and metaphysicians, with a kind of triumph and exultation. A real quantity, infinitely less than any finite quantity, containing quantities infinitely less than itself, and so on *in infinitum;* this is an edifice so bold and prodigious, that it is too weighty for any pretended demonstration to support, because it shocks the clearest and most natural principles of human reason. But what renders the matter more extraordinary, is, that these seemingly absurd opinions are supported by a chain of reasoning, the clearest and most natural; nor is it possible for us to allow the premises without admitting the consequences. . . .[9] Reason here seems to be thrown into a kind of amazement and suspence, which, without the suggestions of any sceptic, gives her a diffidence of herself, and of the ground on which she treads.[10]

Hume is not wholly without a solution for this difficulty, but it involves a return to his earlier conception that geometry is an empirical science. After giving the Berkeleyan doctrine of general ideas, he adds:

It follows that all the ideas of quantity, upon which mathematicians reason, are nothing but particular, and such as are suggested by the senses and imagination, and consequently, cannot be infinitely divisible. . . . It certainly concerns all lovers of science not to expose themselves to the ridicule and contempt of the ignorant by their conclusions; and this seems the readiest solution of these difficulties.[11]

---

[8] *Ibid.,* sec. 27, p. 31.
[9] I omit several sentences in which Hume gives illustrations.
[10] *Ibid.,* sec. xii, part ii, sec. 124, p. 157.
[11] *Ibid.,* footnote at the end of sec. 125, p. 158.

Hume's discussion of mathematics leads him then to the conclusion that unless the empirical principle is applied, a scepticism of amazement and suspense is the only outcome. The same result follows when he considers the central tenet of the new philosophy. Here again it is obvious that he is dealing, if not with science directly, at least with its outcome in popular thought.[12]

The fundamental principle of this philosophy, according to Hume, is " the opinion concerning colours, sounds, tastes, smells, heat and cold; which it asserts to be nothing but impressions in the mind, deriv'd from the operations of external objects, and without any resemblance to the qualities of the objects."[13] The arguments are familiar by which he shows that, upon such an assumption, it is impossible to prove the external existence of objects. A recent analysis of Hume's treatment makes the interesting suggestion that the outcome of the Lockian point of view with which Hume starts is one which he cannot refute and yet cannot accept. "Scepticism here amounts only to acknowledging that there is something the matter with the conclusion even though the premises are seemingly true and the reasoning from the premises sound."[14]

In the *Treatise* Hume states that only one of the arguments commonly offered for the subjectivity of secondary qualities seems to him to be satisfactory, that is, the variations of sense impressions while the object remains the same.[15] But granting this argument, all the conclusions of modern philosophy seem to follow. We are reduced to what are called primary qualities as the only real ones of which we have any adequate notion. These primary qualities are extension and solidity, with their different mixtures and modifications, figure, motion, gravity, and cohesion.[16]

---

[12] Cf. *supra*, chap. i, p. 4.

[13] *Treatise,* Bk. I, part iv, sec. iv, pp. 511-512.

[14] Sterling P. Lamprecht, "Empiricism and Epistemology in David Hume," in *Studies in the History of Ideas,* II, 227.

[15] *Treatise,* Bk. I, part iv, sec. iv, pp. 511-512.

[16] Hume seems here to follow what was probably the popular understanding of the matter.

Yet Hume has little difficulty in showing that if secondary qualities are subjective, primary ones must be equally so. In the *Enquiry* the same refutation is briefly stated with the interesting comment that the belief in external objects is contrary to reason, "at least, if it be a principle of reason, that all sensible qualities are in the mind, not in the object."[17] Hume here suggests a doubt as to the assumption, but does not carry it far enough to attack the theory based upon it. The arguments of modern philosophy remain for him purely sceptical in that "they admit of no answer and produce no conviction."[18]

Hume's interest in the problems raised by the development of science is thus clear in his discussion of space and time, of mathematics, and of primary and secondary qualities.

The core of Hume's argument, however, was the discussion of the causal inference. As we have seen, a rationalistic interpretation of causation was central in Cartesianism, and assumed, though less openly, in "Newtonian" science. It was by means of that assumption that the interpreters of Newton could infer, from the fact of gravitation and the order of nature the existence of existent forces or of a deity. It was by that assumption that Locke asserted the existence of an external world after his logic had ruled it out. Malebranche and Berkeley had denied the validity of the assumption so far as physical causes were concerned only to insist upon it the more strongly for a spiritual realm.

When Hume attacked this principle, he was striking at the heart of rationalism whether conscious or unavowed. Was it the rationalism of the theologians only that he had in mind, or did he see the bearing upon the other interpreters of science as well? The question is not easy to answer by page and line. One thing stands out clearly, however. The central problem for Hume was the same problem which had been involved in the major disputes

[17] *Enquiry,* sec. xii, part i, sec. 123, p. 155.
[18] *Ibid.,* footnote to sec. 123, p. 155.

concerning the meaning of Newtonian science since its formulation. His arguments undermined every rationalistic structure which had been raised upon the foundation of that science; it bore equally against the "materialist" and the theist. Considering the evidence already presented for Hume's interest in the metaphysical problems suggested by science, it is difficult to believe that he wrote of causation without those problems in mind. In a direct reference in the *Enquiry* he shows clearly that he knew the bearing of his argument, whatever the original intent may have been.[19]

Undoubtedly, however, Hume intended no direct answer to scientists as such, as did Berkeley. His chief interest was in philosophic questions apart from their context of specific dispute. To be sure, he came to an interest in metaphysical problems by way of theology, and the desire to "undermine the foundations of an abstruse philosophy, which seems to have hitherto served only as a shelter to superstition and a cover to absurdity and error,"[20] remained a dominating one. But since the rationalistic theology of his day had found its best ally in science, it would have been difficult to present arguments against one without touching the other. Furthermore, in so far as Hume continued the tradition of Locke and Berkeley, he was dealing with problems raised or suggested by the development of mechanistic science. It seems fair, therefore, considering both the direct and the indirect evidence, to conclude that the science of the period formed, at least indirectly, a significant part of Hume's background.

B. Hume's Emphasis on the Causal Principle

We shall follow Hume's argument regarding causation in order to note its relevance to those discussions of scientific procedure which were outlined in the second chapter of these studies as well as to the interpretations of Locke and Berkeley.

---

[19] *Ibid.*, sec. vii, footnote at end of part i, p. 73. Cf. *infra*, p. 80.
[20] *Ibid.*, end of sec. i, p. 16.

A comparison of the *Treatise* with the *Enquiry* brings out in a significant way the stress which Hume placed upon the analysis of causation. His published statement that he wished the *Enquiry* to be taken as the expression of his principles has usually been discounted on one ground or another. Yet there is, at least, a presupposition in favor of taking his word for his own intention. Hume said the same thing in a letter to one of his most intimate friends, Gilbert Elliot, observing that nothing that he considered of importance had been omitted in the *Enquiry*.[21]

On the whole, the omissions from, and additions to, the *Enquiry* show clearly that Hume's chief interest was in his statement on causation. Hume undoubtedly published the *Enquiry* in order to give his principles a more readable form than they assumed in the *Treatise*. In weeding out the less popular sections he omitted nothing, however, that seriously weakened the arguments concerning causation. On the contrary, the omissions make it stand out more sharply.

In the *Treatise* the discussion of causation is preceded by a detailed psychological analysis of ideas and their associations, an account of logical and psychological relations, and an abstruse treatment of space and time. It is followed by a long discussion of scepticism regarding the existence of objects and a psychological analysis of the way in which the belief in an external world arises. In the *Enquiry* the discussion of space and time is entirely omitted and the other topics condensed in such a way that they contribute more directly to the discussion of causation.

Two sections on theology were added in the *Enquiry*. Selby-Bigge speaks of them as superfluous and judges them to be a bold bid on Hume's part for the attention of the bigots.[22] This judgment carries less weight when we recall that the *Essay on Miracles* was meant for the *Treatise*, and only the urgent solicitation of Hume's friends prevented his publishing it there.[23] The sections on theology,

[21] John Hill Burton, *op. cit.*, I, 337.
[22] *Enquiry, op. cit.*, Intro. p. vii.
[23] Burton, *op. cit.*, I, 63.

instead of being irrelevant, may possibly be useful in pointing back to the main theme of the *Enquiry*. They certainly furnish a nice example of the application of the empirical principle of causation to a specific problem. The *Dialogues concerning Natural Religion,* which Hume insisted upon having published, also constitute a thorough application of the same principle.

Hume's empiricism was largely an outgrowth of the discussions of Malebranche, Locke, and Berkeley. It was, however, thoroughgoing, whereas all of his predecessors had reserved rationalism either as an unattainable ideal or as a technique for saving favorite doctrines from loss.

C. The Objective Causal Order

Hume's empiricism loses none of its force when it is removed from its context, for it is not dependent upon the psychological analysis in which it is embedded. This point is crucial for an understanding of what Hume's empiricism consisted, for it has been almost a commonplace of criticism that Hume reduced causation to wholly psychological terms and thereby completed that process of turning the objective world into a subjective one which Locke and Berkeley had initiated in England. Hume led himself and his commentators into difficulties by accepting the premises of phenomenalism and then discarding them at the most important points in his argument. In spite of that fact, the treatment of causation is unambiguous enough, though not wholly consistent. Hume gives a common-sense justification for his departure from strict subjectivism.

> Thus the sceptic still continues to reason and believe, even tho' he asserts, that he cannot defend his reason by reason; and by the same rule he must consent to the principle concerning the existence of body, tho' he cannot pretend by any argument of philosophy to maintain its veracity. Nature has not left this to his choice, and has doubtless esteemed it an affair of too much importance to be trusted to our uncertain reasonings and speculations. We may well ask *what* causes induce us to believe in the existence of body? but 'tis in vain to ask, whether there be body or not? That is a point which we must take for granted in all our reasonings.[24]

Hume does take it for granted in his reasonings about causation. Those reasonings, therefore, can be stated accurately without reference to the epistemological doctrine of ideas. This, as we have noted, was also true of Berkeley; but Hume furnishes us with no separate treatment of causation in non-epistemological terms as Berkeley did in the *De Motu*.

Hume's doctrine of causation has two parts which may be distinguished easily, although he often treats them together; there is an account of causation as an objective order and a description of the psychology of belief in the necessity of causes. The two are not identical and to treat them as being so makes it impossible to get the full force of Hume's point.

If one does not feel himself bound to detect inconsistencies and ambiguities in Hume's writing, he may discover there a straightforward account of causation as a natural relation or order among events. Contiguity and invariable succession are the elements of that order which is independent of human reason. This is the spirit of the whole discussion, but the point is repeatedly stated in specific terms. It is not causation which Hume reduces to custom or habit, but the reasoning based upon it.

> As to what may be said, that the operations of nature are independent of our thought and reasoning, I allow it; and accordingly have observed, that objects bear to each other the relations of contiguity and succession; that like objects may be observed in several instances to have like relations; and that all of this is independent of, and antecedent to the operations of the understanding. But if we go any farther, and ascribe a power or necessary connection to these objects; this is what we can never observe in them, but must draw the idea of it from what we feel internally in contemplating them.[25]

The objective order of causation and effect is not, then, a logical one in the sense that it makes a priori or demonstrative reasoning about it possible.

---

[24] *Treatise,* Bk. I, part iv, sec. ii, I, 478.

[25] *Ibid.,* Bk. I, part iii, sec. xiv, pp. 462-463. See also the discussion of probability, part iii, secs. xii, xiii; and the *Enquiry,* sec. v, part ii, pp. 54-55.

I shall venture to affirm, as a general proposition, which admits of no exception, that the knowledge of this relation [cause and effect] is not, in any instance, attained by reasonings *a priori;* but arises entirely from experience when we find that any particular objects are constantly conjoined with each other. Let an object be presented to a man of ever so strong natural reason and abilities; if that object be entirely new to him, he will not be able, by the most accurate examination of its sensible qualities, to discover any of its causes or effects.

Hume does not agree with Locke that this inability is due merely to human limitations, for he continues:

Adam, though his rational faculties be supposed, at the very first, entirely perfect, could not have inferred from the fluidity and transparency of water that it would suffocate him, or from the light and warmth of fire that it would consume him. No object ever discovers, by the qualities which appear to the senses, either the causes which produced it, or the effects which will arise from it; nor can our reason unassisted by experience ever draw any inference concerning real existence and matter of fact.[26]

If reason, without experience, can draw no inference at all concerning matter of fact, how far may it go with the help of experience? Hume's answer is that it may go as far as experience warrants, but that it can never justify its procedure in terms of demonstrative logic. The order of contiguity and succession in events does not imply its own continuance.

There is nothing in an object considered in itself, which can afford us a reason for drawing a conclusion beyond it, and even after the observation of the frequent or constant conjunction of objects, we have no reason to draw any inference concerning any object beyond those of which we have experience.[27]

This does not mean, of course, that reasoning based upon causation is impossible or generally fallacious. It signifies only that such reasoning is not of the purely dialectical type; it does not amount to demonstration. Experience, however,

---

[26] *Enquiry,* sec. iv, part i, sec. 23, p. 27. In the *Treatise* there is the familiar attack on the assumption that some cause is implied by every event. This is omitted in the *Enquiry.*

[27] *Treatise,* Bk. I, part iii, sec. xii, p. 436.

continually validates inferences based upon it. We discover that the order experienced in nature is maintained in time, so that inferences about the future are justified in the event. In other words, inference is a natural process, in harmony with the other aspects of the natural order; it arises spontaneously in certain situations and points forward to situations which subsequently occur. It may be trusted, therefore, so long as the tentative character of its assumptions is recognized.

> [Belief] must be excited by nature, like all other sentiments; and must arise from the particular situation, in which the mind is placed at any particular juncture.
>
> Here, then, is a kind of pre-established harmony between the course of nature and the succession of our ideas; and though the powers and forces, by which the former is governed, be wholly unknown to us; yet our thoughts and conceptions have still, we find, gone in the same train with the other works of nature.[28]

There seems to be no objection now to giving the name "reason" to inferences of this type. Hume, however, felt that in presenting such a view he was somehow opposing reason with a new principle. The arguments against the a priori treatment of causation are found in the *Enquiry* in the section entitled "Sceptical Doubts concerning the Operation of the Understanding." The description of natural inference is part of the "Sceptical Solution of Those Doubts." His emphasis upon inference as a psychological phenomenon rather than a logical one is explicable if we remember that it was the common assumption of his time that valid reasoning must rest upon self-evident first principles. He could not find such premises for inferences concerning causation and so called himself a sceptic concerning the operations of the human understanding. What he had done was not to overthrow reason but to give an analysis of the process of inference as it must operate on factual material. There was little, however, in eighteenth century conceptions of the character of implication to suggest to him that the

[28] *Enquiry,* sec. v, part ii, sec. 39, p. 48, and sec. 44, p. 54.

term "reason" might be applied accurately to inferences from hypothetical premises.

It makes little difference, however, to his actual point, so long as he admitted that events do bear out our thinking about them. While objects considered in isolation give no information about their own past or future, when they are observed in their context in the time order we may reason about them successfully so long as we do not claim infallibility.

Hume would thus rule out the types of rationalism which identified causes with logical grounds; he denied, therefore, the possibility of extending knowledge, by means of the causal inference, to objects beyond experience. Neither God nor matter, defined as beyond the reach of the senses, can be inferred from the facts of experience.

Yet Hume recognized that in reasonings concerning causes and effects there is an element of necessary connection. If this necessity is not in the events themselves, how is it to be accounted for? It is the discussion of this question which constitutes the crux of Hume's argument.

"I begin," Hume says, "with observing that the terms of *efficacy, agency, power, force, energy, necessity, connection, and productive quality* are all nearly synonymous; and therefore 'tis an absurdity to employ any of them in defining the rest."[29] If the terms are virtually synonymous for Hume, what is their common meaning? Apparently they are alike in that they all refer to felt necessity; they are all descriptive of the simple fact that in all matters of causation we feel that two events not only are conjoined but that they must be so. Fire suggests burning and is refractory to any other association. But this necessity, force or efficacy, cannot be discoverd in the object; it must then be a habit of the mind. Hume's argument is too well-known for detailed treatment here.

In the quotation just given, there is a curious identification of necessity with force or power. If that identification

---

[29] *Treatise,* Bk. I, part ii, sec. xiv, I, 451. See also *Enquiry,* sec. vii, part i, sec. 49, pp. 61-62.

was made generally, and not merely by Hume himself, what was the connotation of the terms? Did force mean only logical necessity, or had necessity been hypostasized as existing concretely in forces? Previous chapters have indicated that a belief in forces existing as entities was often reached by means of the assumption of a logically necessary connection between events. Hume may have recognized that this was tantamount to isolating the factor of necessity and conceiving it as existing in objects. At any rate, he attacked the conception from both sides. He not only argued that no event implies its causes or effects but contended that we have no experience of existing forces. Here, surely, the "new philosophy" of science was in his mind.

If force is an existent quality or entity resident in objects, it should be discoverable through sensation; for if it exists beyond experience, it can be inferred only by assuming the principle of necessary connection, which was ruled out by Hume's argument against the logical necessity of cause.

But perhaps force is an item of immediate experience. This had been contended by Berkeley, among others. Hume gave the supposition a brief treatment in an appendix to the *Treatise*.

> Some have asserted that we feel an energy, or power, in our own mind; and that having in this manner acquired the idea of power, we transfer that quality to matter, where we are not due immediately to discover it. The motions of our body, and the thoughts and sentiments of our mind (say they), obey the will; nor do we seek any farther to acquire a just notion of force or power. But to convince how fallacious this reasoning is, we need only consider, that the will being here considered as a cause, has no more a discoverable connection with its effects, than any material cause has with its proper effect. . . . In short, the actions of the mind are, in this respect, the same with those of matter. We perceive only their constant conjunction; nor can we ever reason beyond it. No internal impression has an apparent energy, more than external objects have.[30]

In the *Enquiry* the same argument is presented at greater length, and it is associated with the discussion of allied

[30] *Treatise,* Bk. I, part iii, sec. xiv, pp. 455-456.

points which the new science suggested. There is, for instance, the contention that the resistance met with in bodies gives a direct experience of force or power. To which Hume replies, "This sentiment of an endeavor to overcome resistance has no known connection with any event; what follows it, we know by experience; but could not know it a priori."[31]

If neither the operations of the mind nor the resistance of bodies gives an experience of force, what of the supposed forces of science? One passage, a footnote in the *Enquiry,* is worth quoting in its entirety. Hume has just been arguing that we have no more experience of power in ourselves than in objects and concludes the section with a criticism of those reasonings by which all power is ascribed to God.

> I need not examine at length the *vis inertiae* which is so much talked of in the new philosophy, and which is ascribed to matter. We find by experience, that a body at rest or in motion continues forever in its present state, till put from it by some new cause; and that a body impelled takes as much motion from the impelling body as it acquires itself. These are facts. When we call this a *vis inertiae,* we only mark these facts, without pretending to have any idea of the inert power; in the same manner as, when we talk of gravity, we mean certain effects, without comprehending that active power. It was never the meaning of Sir Isaac Newton to rob second causes of all force or energy; though some of his followers have endeavored to establish that theory upon his authority. On the contrary, that great philosopher had recourse to an etherial active fluid to explain his universal attractions; though he was so cautious and modest as to allow, that it was a mere hypothesis, not to be insisted upon, without more experiments. I must confess, that there is something in the fate of opinions a little extraordinary. Descartes insinuated that doctrine of the universal and sole efficacy of the Deity, without insisting on it. Malebranche and other Cartesians made it the foundation of all their philosophy. It had, however, no authority in England. Locke, Clarke, and Cudworth, never so much as take notice of it but suppose all along that matter has a real, though subordinate and derived power. By what means has it become so prevalent among our modern metaphysicians?[32]

Here Hume gives exactly the same account of inertia and

---

[31] *Enquiry,* sec. vii, part i, footnote following sec. 52, p. 67.
[32] *Ibid.,* footnote at the end of sec. vii, part i, p. 73.

gravitation which Berkeley had given in the *De Motu* He suggests a contrast between Newton's empirical technique and the dogmatism of his followers. Furthermore, the concluding sentence suggests even a knowledge of the minor discussion about questions of causation which had arisen among obscure writers. For who are those modern metaphysicians who ascribe all efficacy to God? Evidently they are English writers; Berkeley suggests himself at once, but Hume evidently has others in mind as well. Perhaps he knew the book of Andrew Baxter called *An Enquiry into the Nature of the Human Soul.* Baxter argued there that inertia is essential to matter, and that any active power such as gravitation cannot exist with it. All motions therefore "are the immediate work of the first Cause."[33] Baxter's book was directed partly against Colin MacLaurin, and in return it called forth at least one reply.[34]

Bentley, as we have seen, had used the same argument.[35] Theologians may well have felt that there was ground for their conclusion in the inconsistencies of the lesser scientists, if not in Newton himself. Rutherforth, for instance, had said that matter has a real force of inertia with which gravitation is inconsistent. Nor did he believe the latter could be accounted for mechanically. Zealous theologians completed the argument.[36]

D. The Influence of Hume's Criticism

Hume's logic had so direct a bearing upon theological arguments that it aroused immediate comment and opposition. Its relevance to science was less immediately noted, at least in England. This may be due to the fact that the Newtonian group was clarifying its own empirical position and thought that Hume was contributing nothing new.[37]

---

[33] Andrew Baxter, *An Enquiry into the Nature of the Human Soul,* p. 43.
[34] John Jackson, *A Dissertation on Matter and Spirit.*
[35] Cf. *supra,* pp. 38-39.
[36] Thomas Rutherforth, *A System of Natural Philosophy,* pp. 3-4, 27-28.
[37] Cf. the discussion of Keill, *supra,* pp. 33-34. Cassirir states that Keill antedated Hume in his conception of force. See *Das Erkenntnisproblem,* II, 422.

He actually stated in theoretical terms the essence of the empirical technique and turned it against the rationalistic interpretations which had been placed upon experimental results.

In France Hume's principle had some influence, although it is difficult to tell how much. At least, Maupertuis seems to have followed Hume as well as Berkeley in his empirical treatment of forces.[38]

E. Sources of Hume's Scepticism

Since we have considered the eighteenth century problems to which Hume addressed himself, it might be well to take note also of those aspects of current thought which he found congenial. First in importance, is the question of his relation to Locke and Berkeley. It has been almost universally said that Hume carried to its logical conclusion the position of his two immediate predecessors, and this is, of course, true enough if his philosophy be considered chiefly as an extreme phenomenalism. But from the point of view of the preceding analysis of Hume, it becomes quite clear that his originality does not lie in his presentation of subjectivism. In that regard, he only accepted and amplified a position which had been repeatedly stated. Thus far, he carried on the tradition of English empiricism.

In the more important questions which he raised, however, Hume was almost uniformly opposed to Locke. He could not agree with him on power, causation, or the evidence for an external world.[39] On the other hand, while he said of Berkeley's arguments that *"they admit of no answer and produce no conviction,"*[40] he considered his doctrine of abstract ideas as one of the "greatest and most valuable discoveries that has been made of late years in the republic

---

[38] Pierre L. M. Maupertuis, *Essai de cosmologie,* in *Oeuvres,* I, 28-32, and the *Réflexions philosophiques sur l'origine des langues.*

[39] For his references to Locke on causation and power see *Treatise,* Bk. I, part iii, sec. iii, pp. 382-383; sec. xiv, p. 452; and in the *Enquiry,* sec. vii, part i. For the existence of an external world see the *Treatise,* Bk. I, part iv, sec. iv.

[40] *Enquiry,* sec. xii, part i, footnote, p. 155.

of letters."[41] Furthermore, Hume was obviously influenced by Berkeley in his discussion of space, time, and force.[42]

Yet when we look for influences upon Hume, in so far as his central doctrine regarding necessary connection is concerned, we find that we must turn to Malebranche. Hume's ony detailed reference throughout the entire *Treatise* is to *De la recherche de la vérité,* in which he cites "Bk. VI, Part 2, chap. 3 and the illustrations upon it,"[43] in support of his statement that "we meet very little encouragement from that prodigious diversity, which is found in the opinions of those philosophers, who have pretended to explain the secret force and energy of causes."[44]

In the sections to which Hume here refers, Malebranche not only cites the futile efforts of philosophers to explain causation, but he disposes of the theory that the action of the will gives a direct experience of necessary connection.

> If a man cannot overthrow a Tower, yet he knows what must be done to effect it: but not one amongst them knows what the vital spirits must do to move one of his fingers.[45]

Nor is the matter any clearer when we consider the control of the will over thought.

> We are inwardly conscious that we will the thinking on something; that we make an effort to that purpose, and that in the moment of our desire and effort, the idea of the thing presents itself to our mind, but our inward sensation does not tell us, that our will or effort produces our idea.[46]

Hume repeats this argument, almost as if he were paraphrasing the statements of Malebranche, although he cannot, of course, agree with the latter's conclusion that the sole causal efficacy is found in the Deity.[47]

---

[41] *Treatise,* Bk. I, part i, sec. vii, p. 325.

[42] In an appendix to the *Treatise,* he corrected a statement that he had made concerning the perception of distance. The correction was apparently made to bring his discussion in line with Berkeley's *Essay towards a New Theory of Vision.* Cf. the latter, secs. xii-xv.

[43] *Treatise,* Bk. I, part iii, sec. xiv, p. 452.

[44] *Ibid.*

[45] Pierre Malebranche, *De la recherche de la vérité,* English translation by T. Taylor, p. 59.

[46] *Ibid.,* p. 180.

[47] *Treatise,* Bk. I, part iii, sec. xiv, pp. 452-455.

In a very real sense, Hume was part of a widely diffused sceptical tradition whose ramifications it is impossible to follow in detail here. In the seventeenth and eighteenth centuries when education meant a classical training, the philosophies of Greece and Rome still seemed very close to be actively defended and refuted. Montaigne, for example, was an academic sceptic with Cicero as his master.

A complete account of Hume's background would necessarily include a treatment of the sources of his sceptical empiricism. Such an account would, however, constitute a study in itself. It may nevertheless be interesting to note some of the more obvious of the sources from which Hume probably drew.

Scepticism is a term which in the eighteenth century covered a variety of tendencies. There was, first of all, the traditional scepticism concerning the existence and nature of the external world, based largely upon arguments from the deception of the senses. It had its roots in the Pyrrhonism and academic scepticism of the classic philosophers. The treatment which the latter received was entirely critical; the idea of a truly historical analysis had not yet arisen.

This traditional scepticism had received a new impetus from the supposed discoveries of mechanical science, which showed that all secondary qualities were in the mind. From that point the next step was clear; it had only to be shown by the same arguments that primary qualities are equally subjective. Who first completed the argument we do not know. Berkeley has sometimes been credited with it, but there is evidence that others had done the same thing before him. Bayle makes the point, giving credit to the Abbé Foucher who had brought this argument against Malebranche.[48] Probably it had occurred to a great many. Hume presented the argument, and the difficulties to which it led may have made him suspect the premises, but, if so, he did

[48] Pierre Bayle, *Dictionaire historique et critique*, article on Pyrrhon, Note B.

not go beyond the suspicion. Rather, he found the whole discussion an additional argument for scepticism.

Closely allied to this scepticism involved in the theory of secondary qualities was the doubt raised by the empirical method in general. That method was an attempt to describe accurately the relations among events, without raising metaphysical questions. To men who, through tradition, had been imbued with the rationalistic idea, this seemed a denial of real explanation. As we have seen, even an avowed empiricist like Locke spoke of experimental science as a kind of makeshift in lieu of that rational science that finite minds could not attain.[49]

Cassirir has gone so far as to say that this scepticism was the essence of Newtonian philosophy.[50] In support of the contention he cites, among others, D'Alembert, Condillac, and Maupertuis.

Although D'Alembert labored to produce a rigidly demonstrative mechanics depending, as he thought, upon a priori principles, there are some statements which support Cassirir's view.[51] Maupertuis, who had been influenced by both Berkeley and Hume, comes to the conclusion that unknown beings excite all the sentiments of our souls without resembling them.[52]

Bayle, of course, was a striking example of the sceptical attitude. He argued that scepticism is not dangerous to science, since the latter deals only with hypotheses. *Je suis fort assuré qu'il y a très peu de bons Physiciens dans notre siècle, qui ne se soient convaincu que la nature est un abîme impénétrable et que ses ressorts ne sont connus qu'à celui qui les a faits et qui les dirige. Ainsi tous ces Philosophes sont à cet égard Académiciens et Pyrrhoniens.*"[53]

---

[49] Cf. *supra,* chap. iii.

[50] Ernst Cassirir, *Das Erkenntnisproblem in der Philosophie und Wissenschaft der neueren Zeit,* II, 421-422, 427.

[51] Jean le Rond d'Alembert, "Élémens de philosophie," *op. cit.,* secs. v and xix.

[52] Pierre L. M. Maupertuis, *op. cit.,* Letter IV, II, 234.

[53] Pierre Bayle, *loc. cit.*

This curious identification of scientific method with scepticism is the same as that we have already seen in Locke. Hume subscribed to it, at least formally. Yet, if one may hazard a personal impression, it might be said that he does not, like Locke, feel the loss of rationalistic a priori knowledge. His argument has the air of unregretful acceptance of empiricism. In the *Treatise,* for instance, his comment upon our ignorance of necessary connection is used, not to prove the incompetence of reason, but rather as an introduction to his own psychological explanation of the causal inference.[54]

A third ramification of scepticism, and the most prominent one, was, of course, in religion. There were those who drew from the uncertainties of reason a conclusion in favor of faith. Watts and Browne, cited above, were examples. Bayle, however, had furnished the outstanding illustration, although the question of his sincerity could never be answered.[55]

It is easy to recognize an ironic similarity between this position and Hume's remark in the *Essay on Miracles.* We may conclude that the Christian Religion not only was at first attended with miracles, but even at this day cannot be believed by any reasonable person without one. Mere reason is insufficient to convince us of its veracity: And whoever is moved by *Faith* to assent to it, is conscious of a continued miracle in his own person.

But Hume's real affinity, with respect to religious questions, was with the type of scepticism presented by Cicero's *De Natura Deorum.* The form of *Dialogues concerning Natural Religion* resembles in some respects the dialogue of Cicero. The characters in the two present the same points of view, and, as Zielinski suggests, the conclusions are virtually identical.[56] It is impossible here to enter into the disputed question of the meaning of the *Dialogues,* but

---

[54] *Treatise,* Bk. I, part iii, sec. xiv, pp. 453 ff. There is no evidence that Hume knew the *Scepsis Scientifica: or Confest Ignorance, the Way to Science,* by Joseph Glanvill, although their arguments are very similar.

[55] Pierre Bayle, *op. cit.,* article on Pyrrhon. See also Émile Faguet, *Dix-huitième siècle,* chapter on Bayle, especially pp. 20-23.

[56] Th. Zielinski, *Cicero im Wandel der Jahrhunderte,* pp. 228-232.

the frequency with which it has been discussed only proves how thoroughly sceptical its tendency was, in the sense in which Hume used the word most often. It presents a suspended judgment, or one so modified by the consideration of every phase of the question of natural religion that it could serve no dogmatism. "I confess," said Pamphilus, "that upon a serious review of the whole, I cannot but think that Philo's principles are more probable than Demea's; but that those of Cleanthes approach still nearer to the truth." With that the dialogue closes.[57]

However much Hume may thus belong to the sceptical tradition, his distinctive contribution, the doctrine of causation, is sceptical only in a special sense. What he doubts is not the fact of a causal order but the logical character of the inferences based upon it. And in this doubt lies his real originality. To be sure, he was undoubtedly influenced by both Malebranche and Berkeley but in two respects his analysis was distinctly new. It included those types of causation which both of his predecessors had exempted from their criticism, and it gave a psychological explanation for the feeling of necessity.

[57] Charles W. Hendel, Jr., in *Studies in the Philosophy of David Hume* gives a detailed discussion of the development of Hume's religious views. For that reason I have not considered them here. See the Preface of these essays.

CHAPTER V

EMPIRICISM IN MORALS

A. The Background of Hume's Ethics

In the eighteenth century, as at other times, empirical method made its way more slowly in social than in physical sciences. In the field of morals the a priori method yielded reluctantly to an experimental one. In many respects, however, the situation in the social sciences parelleled the development in natural philosophy. There were the same confusions as to method in both. Each had its own mythology; superempiricism in the interpretation of science was balanced by metaphysical theories of the state in politics, and of obligation in ethics.

A naturalistic and humane ethics was slowly freeing itself from theological assumptions and dialectical method, but the science of politics was still almost wholly dogmatic. Rationalism served as the technique of dogmatism in ethics and politics as well as in theology. Fanaticism in religion and faction in politics resorted to the same weapons.

David Hume believed that "faction next to fanaticism is of all passions the most destructive of morality,"[1] and he proposed a mild scepticism as an antidote for both poisons. As we should expect, the particular form of his empiricism in the moral sciences was largely affected by the course of current discussions. The problems were set for him; the method he applied was the empirical one so elaborately defended in the first book of the *Treatise of Human Nature*. Hume's moral and political treatises have a real unity with his metaphysics in that they exhibit his principles at work in a specific field.

If any apology be needed for treating at all of the historic background of Hume's ethics, which is so well-

[1] John Hill Burton, *Life and Correspondence of David Hume*, II, 471.

known, it lies in the fact that there is so much of the eighteenth century in Hume's moral system that the sharp contrast afforded by his method has not been greatly stressed. He has been so easily classified as a moral sense philosopher and an utilitarian that the peculiar character of his empiricism has been missed. I shall try to note such features of the moral theories contemporary with Hume as seem to make his empirical method stand out with some of the prominence which he himself attached to it.

During these years when Hume was developing the principles of his *Treatise of Human Nature* and depending wholly, as he thought, upon his own inventions, Samuel Clarke was "generally regarded as the first of English metaphysicians."[2] Clarke had, it is true, written nothing of importance since 1705, yet his work continued to be immensely influential for some years after his death in 1729.

It was in the years 1704-1705 that Clarke delivered the Boyle lectures that stated his philosophical and ethical position. From that time he was the oracle for a large group of young men in Cambridge and throughout England who wished to harmonize the new science with Christian revelation and the ethics of reason with the commands of God. He was a rationalist in morals in the fundamental sense of conceiving ethics to be a strictly dialectical science. One motive at least for such a rationalism was the desire for certainty in ethics. Even divines were thinking in increasingly secular terms, and the rationalizers in and out of the church agreed that supernatural sanctions for morals were no longer acceptable as the sole authority. The deistic controversy had accomplished this much, at least.

It was natural, then, that questions of obligation should be conspicuous in ethical discussion. Theological legalism had lost ground, but it had left legalists behind it who looked for new authority to take the place of the old. It was equally natural that they should look for it in the same field which furnished the certainties of physical science, the

[2] *Dictionary of National Biography.*

field of mathematics. The successful application of mathematics to physical facts suggested a similar application in morals, perhaps with greater success. Physics could not follow a purely dialectical pattern as the Cartesians had hoped; empiricism was required. But moral facts might be more amenable. Demonstrative ethics thus had both logical and historical affinities with the apriorism which, as we have seen, gave way so slowly in natural science.

Certainly no better authority than dialectic could be found for an ethics in need of a principle of certainty. In the realm of ideas, the realm of the intelligible, the laws of ethics would escape from change if they could only find a place there. Clarke attempted to make such a resolution of ethics to dialectic by treating virtue as a wholly intelligible relation among logical entities called God, man, and society. There are, according to him, eternal and necessary differences between things with consequent agreements or disagreements among them, and a fitness or unfitness in applying things and relations to each other. It follows that certain types of human behavior are suitable with reference to God and society, while others are not. A whole system of ethics can therefore be deduced from an examination of the fundamental concepts with which the science begins.[3]

Clarke used interesting similes which leave no doubt as to the dialectical ideal he had in mind. The suitability of things and actions to each other is as certain as propositions in arithmetic and geometry or as the proportions of bodies. The fitness of some human actions is as evident as the fact that the properties which flow from the essences of mathematical figures are congruous or incongruous with one another, or that weights and forces have different effects according to their distances and positions. In spite of his expressed deference for empiricism, Clarke implies that the laws of physics and ethics exhibit the same type of necessity found in mathematics.[4]

---

[3] Samuel Clarke, *The Unchangeable Obligations of Natural Religion*, Vol. II of *Works*, Prop. I, pp. 608 ff.

[4] *Ibid.*, p. 613.

The confusions in Clarke's moral system arise largely from this difficulty in discriminating between the truths of mathematics and those of existent facts. If they are the same, then a dialectical ethics is not only a statement of what should be but of what actually is; by some kind of pre-established harmony, whatever is, is right. As a practical moralist, Clarke, of course, continually expressed his disbelief in any such proposition. The alternative view that an a priori ethics is a pattern, a necessary standard, was the only one he could sensibly hold.

Yet a kind of longing for apriorism creeps in. If this only were a wholly intelligible world! Then the will would be identical with reason; it would disappear as a separate activity. Non-rational desire seems to Clarke a kind of original sin in the universe. "Originally and in reality it is natural and (morally speaking) necessary, that the Will should be determined in every Action by the Reason of the Thing, and the Right of the Case; as 'tis natural and (absolutely speaking) necessary, that the Understanding should submit to a demonstrated Truth."[5] The mechanistic science which Clarke championed had left man as an unassimilated phenomenon in the universe; his dialectical ethics found human nature quite as difficult to deal with.

In 1724, five years before Clarke's death, William Wollaston published his *Religion of Nature Delineated* in which he pushed to its limits the doctrine that ethics was a dialectical science on a plane with mathematics. Ten thousand copies were sold in a few days, and the book furnished the most popular example of the ethics of reason. Wollaston believed that his moral theory was new,[6] but it was a development of Clarke's point of view. He agreed in describing the good and evil in terms of relations which could be definitely fixed once and for all. And from this conception he drew the conclusion (which Clarke had not formally accepted) that all evil actions are primarily a matter of error. Desire is identical with understanding.

[5] *Ibid.*, pp. 187-188.
[6] William Wollaston, *Religion of Nature Delineated*, p. 6.

69127

In spite of the paradoxes which resulted from this description of the moral situation, Wollaston's whole ethical theory was actually less dialectical than that of Clarke. For he admitted, in his definitions of man and society, elements of desire, pleasure, and pain which Clarke had omitted. To act according to truth requires that men should be considered as beings "susceptible of happiness, and unhappiness, naturally desirous of the one and averse to the other."[7] Yet Wollaston does not succeed in keeping this empirical point of view. For happiness, as he is thinking of it, not actual human good as men experience it, but a good which must exist when truth is adhered to. "Happiness depends on truth for it is absurd to think that men can break the constitution of things determined by God and still be happy."[8]

When Hume came to his criticism of this type of ethical theory, he ascribed its origin to Malebranche and its continuance in England to Clarke and Wollaston. He did not mention a nearer source, John Locke. This is interesting, at least in view of the fact that Hume is usually thought of as continuing the Lockian tradition. We can only guess at the reason for this omission of Locke's name from among the rationalists. Certainly it was not from ignorance. It may have been that respect for Locke's general service to empiricism made Hume somewhat wary of criticising him too directly here, although he was outspoken enough on other points.

Locke's emphasis upon empirical method was so significant for subsequent philosophy that his own departures from it have seldom been stressed. It is a curious fact, however, that in those practical subjects which interested him most, ethics and politics, Locke advocated the dialectical method. This was of course in keeping with his ideal of a priori knowledge which we have already discussed as the basis of his scepticism.

Mathematics, according to Locke, is not the only science

[7] *Ibid.*, p. 38.
[8] *Ibid.*, pp. 38-39.

in which the a priori method may be used; "ideas of quantity are not those alone that are capable of demonstration and knowledge."[9] He does not doubt, for instance, that morals might be as certain as mathematics if proper attention were given to that subject.

> The idea of a Supreme Being, infinite in power, goodness and wisdom, whose workmanship we are and on whom we depend; and the idea of ourselves, as understanding, rational creatures, being such as are clear in us, would, I suppose, if duly considered and pursued, afford such foundations of our duty and rules of action as might place *morality* amongst the sciences capable of demonstration: wherein I doubt not but from self evident propositions, by necessary consequences, as incontestable as those in mathematics, the measures of right and wrong might be made out, to anyone that will apply himself with the same indifferency and attention to the one that he does to the other of these sciences.[10]

The rationalistic method in ethics was opposed by an empirical ethics of human nature. Clarke was the most conspicuous of ethical writers, but he was forced to divide honors with an increasingly large group of moralists who used new methods. They claimed intellectual descent from Shaftesbury; their technique was psychological analysis, and their object, to stress benevolence as the essence of virtue.

While this group introduced an empirical method, they were frequently diverted from a strict adherence to it by the strong theological interest which they shared with their opponents. With the exception of Hobbes, no English philosopher had treated ethics as a wholly positive science. The rationalists were usually theologians interested in discovering indubitable foundations for the code of Christianity. They wished to make morality or "natural religion" the basis for a defense of revealed religion. Clarke's theory of rational ethics is a part of his Boyle lectures. The first discourse was designed to demonstrate the being and attributes of God. The second completes the whole design

---

[9] John Locke, *Essay concerning the Human Understanding*, II, Bk. IV, chap. iii, pp. 207-208.

[10] *Ibid.*, pp. 208-209.

"of proving the Truth and Excellency of the whole superstructure of our most holy religion." In it Clarke proceeds from this foundation of the certainty of the being and attributes of God to demonstrate in the next place "the unalterable obligations of Natural Religion and the certainty of Divine Revelation." Wollaston identifies natural religion with morality and makes the truths relating to the deity an important part of his scheme.[11]

On the other hand, those writers who felt themselves to be free from the trammels of the traditional religion were equally theological in their ethics. It is to the credit of the deists that they were the first to free morals from the domination of scriptural authority. But they could not free it from theology, since that was as dominant an interest with them as with their opponents. It was entirely appropriate to the character of the ethics of the eighteenth century that the professor of Moral Philosophy in Edinburgh should also teach Pneumatics, the Being of God and the Angels.

While Hume was studying in Edinburgh in 1725, Francis Hutcheson, a Dublin schoolmaster, published *The Original of our Ideas of Beauty and Virtue*. The book gained him immediate prominence, and in 1730 he went to Glasgow as professor of Moral Philosophy. There his lectures, the first to be given in English rather than Latin, charmed the young Presbyterians reared in the ethics of original depravity and predestination. Universal benevolence and moral sentiments were the keynote of his teaching. Hutcheson's own optimistic and kindly disposition seemed to illustrate his principles, and his liberal Christianity offered a means of harmonizing tradition with the newer and more humane ethical viewpoint. He was immensely popular.[12] Glasgow students were interested, first of all, in his treatment of the moral sentiments and of benevolence. They were less concerned with his insistence that ethics was an empirical science. But it was at this point that he was in definite oppo-

[11] Wollaston, *op. cit.*, sec. xv, p. 324.

[12] Henry G. Graham, *Scottish Men of Letters in the Eighteenth Century*, chap. ii; Alexander Carlyle, *Autobiography*, pp. 59-60.

sition to the prevailing method in ethics, and it was at this point that Hume found himself in agreement with him.

When Hutcheson was still a student in Glasgow he wrote to Clarke asking questions as to the validity of arguments a priori. Apparently Clarke gave him no reply, but Hutcheson continued to hold the opinion which that letter indicated, that some subjects were not suited for demonstration but rather for probable reasoning. He believed that "to seek demonstration where probability can only be obtained is almost as unreasonable as to demand to see sounds or hear colors." Only those whose understanding is disordered "with an unnatural thirst for scientific knowledge on all subjects alike" will attempt to use demonstration in everything. Leechman says of him, "This opinion of the various degrees of evidence adapted to various subjects first led Dr. Hutcheson to treat morals as a matter of fact, and not as founded on the abstract relations of things."[13]

Hutcheson took his model from the natural sciences as he understood them.

> He was convinced that in like manner a true scheme of morals could not be the product of genius and invention, or of the greatest precision of thought in metaphysical reasonings, but must be drawn from proper observations upon the several powers and principles which we are conscious of in our own bosoms, and which must be acknowledged to operate in some degree in the whole human species.[14]

Hutcheson, it was clear, was extremely interested in establishing ethics as an empirical science. But for him, as for the intellectualists, human nature was not the only datum. The fundamental tenets of a liberal Christianity were assumed and made an integral part of ethical theory. Final causes were identified by Hutcheson with the conscious design of an intelligent first cause. The design which he found in the contrivance of man's moral nature was of a piece with the general design of the universe.

---

[13] William Leechman, "Life of Francis Hutcheson," prefixed to the latter's *A System of Moral Philosophy*, pp. v-vi.

[14] *Ibid.*, p. xiv.

In his lectures in natural theology he opened to his students' view "a large field of science of which they had no conception" when he pointed out to them "the numberless evidences of wonderful art and design in the structure of particular things and the still more astonishing evidence of the wisest contrivance, and the most benign intention, in the whole material system considered as one design."[15] He found like evidence of the Creator's plan in the adaptation to each other of the self-regarding and the benevolent impulses of men.

Not only was Hutcheson's system linked with his optimistic theology, but he had laid great stress on the more ascetic of the Christian virtues. Suffering he believed to be valuable because it gave the opportunity for practicing "the most sublime virtues, such as resignation to the will of God, forgiving of injuries, returning good for evil, and leading us to form just notions of the vanity of all things, except the love of God and the love and practice of universal goodness."[16]

Hutcheson's work is a striking illustration of the difficulties that lay in the way of a liberal and non-theological ethics in the eighteenth century. Strongly influenced as he was by classicism and desirous of making an impartial survey of ethical problems, he was still too much under the theological influence to succeed in his aim.

Hutcheson's master was Shaftesbury whose wide influence in literature as well as in philosophy was symptomatic of the general classical and humane trend of thinking. The *Characteristics,* first published in 1711, went through many editions, and as late as 1751 an attack upon it by John Brown brought three defensive replies.[17]

It has been said that Shaftesbury first succeeded in separating ethics from both politics and religion, but this statement needs qualifications. Like all the "free thinkers" in

---

[15] *Ibid.,* pp. xxxii-xxxiii.

[16] *Ibid.,* pp. xxxiv-xxxv.

[17] Shaftesbury, *Characteristics,* Introduction by J. M. Robertson.

the church as well as out of it, he wished to find some other foundations for morals than the arbitrary will of God or of the State. In the essay *Concerning Virtue and Merit* he attempted a dispassionate discussion of the possibility of such an independent ethics. He concluded that metaphysical opinions had only an indirect effect upon morals in so far as they reinforced the dictates of natural ethics and influenced habit.

Yet there was a striking inconsistency in Shaftesbury's treatment, for his own ethical system was wholly dependent upon a general optimistic view of the universe—a view thoroughly religious and definitely allied with theism. He was the forerunner of Leibniz with his best of all possible worlds; and he never doubted that the harmony of the universe implied universal mind.[18] He disclaimed the title of deist, but his view was in complete accord with deistic tendencies. His ethics substituted a new theological basis for the rejected one.

B. Hume's Attempt to Introduce the Experimental Method into Moral Subjects

When viewed against this background, Hume's ethical system exhibits two striking characteristics, a non-rationalistic method and a secular tone. Hume believed that the basis of ethics is the nature of man and that good and evil are wholly determined by human considerations. Empiricism, as he understood it, precluded theological presuppositions as well as a priori method.

Hume begins his discussion of ethics in both the *Treatise* and the *Enquiry* with a set refutation of rationalism. He describes that doctrine in the exact phrases of Clarke, Cudworth, and Wollaston.

> Those who affirm that virtue is nothing but a conformity to reason; that there are eternal fitnesses and unfitnesses of things which are the same to every rational being that considers them; that the

[18] Shaftesbury, *The Moralists*, part ii, sec. iv.

immutable measures of right and wrong impose an obligation: not only on human creatures but also on the Deity himself: All these systems concur in the opinion, that morality, like truth, is discerned merely by ideas and their juxtaposition and comparison.[19]

Hume's answer is that if virtue is a demonstrable relation among ideas, it must be one of the four philosophical relations of resemblance, contrariety, degree, or quantity. But it is evidently none of these, "for all these relations belong as properly to matter as to our actions, passions and volitions."[20] In the *Enquiry concerning Human Understanding* he further limits the relations capable of demonstration in such a way that morals are definitely excluded. It is interesting that the illustration of rationalistic ethics which Hume selects for refutation is taken directly from Locke, although his name is not mentioned.

The only objects of the abstract science or of demonstration are quantity and number, and all attempts to extend this more perfect species of knowledge beyond these bounds are mere sophistry and illusion. . . . To convince us of this proposition, *that where there is no property, there can be no injustice,* it is only necessary to define the terms, and explain injustice to be a violation of property. This proposition is, indeed, nothing but a more imperfect definition.[21]

Hume furthermore points out that the exponents of rationalistic ethics introduce the notion of obligation into their system without recognizing it as a new factor not contained in their definitions or premises.

In every system of morality, which I have hitherto met with, I have always remarked, that the author proceeds for some time in the ordinary way of reasoning, and establishes the being of God, or makes observations concerning human affairs: When of a sudden I am surprised to find, that instead of the usual copulation of propositions, *is,* and *is not,* I meet with no proposition that is not connected with an *ought* or an *ought not.* This change is imperceptible; but is, however, of the last consequence. For as this *ought* and *ought not,* expresses some new relation or affirmation, 'tis necessary . . . that a reason

[19] *Treatise,* Bk. III, part i, sec. i, II, 234-235.

[20] *Ibid.,* pp. 240-241.

[21] *Enquiry,* sec. xii, part iii, sec. 131. The proposition that where there is no property there is no injustice is found in Locke's *Essay,* Bk. IV, chap. iii, sec. xviii.

should be given, for what seems altogether inconceivable, how this new relation can be a deduction from others, which are entirely different from it.[22]

Hume's criticism of theological assumptions in ethics was as outspoken as that of the a priori method, but it is less familiar. It may have seemed the more important of of the two in Hume's time. Even Hutcheson had followed the traditional division of duties into those owed to God, to mankind, and to ourselves, and he found the first duty toward God to be that of possessing "just sentiments concerning His nature."[23] This gave an opportunity to introduce proofs of the existence of God from the structure of the world and of animals! In comparison, Hume's ethics was conspicuous for the topics omitted. He was not content, however, to forego direct criticism. He strongly defended his position by an appeal to the usage of classical moralists. He quotes Cicero at length, with a comment upon the theological trend of modern ethics.

> In later times, philosophy of all kinds, especially ethics, have been more closely united with theology than ever they were observed to be among the heathens; and as this latter science admits of no terms of composition, but bends every branch of knowledge to its own purpose, without much regard to the phenomena of nature, or to the unbiased sentiments of the mind, hence reasoning and even languages, have been warped from their natural course and distinctions have been endeavored to be established where the difference of the objects was, in a manner, imperceptible.[24]

In an interesting correspondence with Hutcheson, Hume defended his treatment of natural abilities as virtues on the ground that he followed the common use of language there. He added, "Upon the whole, I desire to take my catalogue of virtues from Cicero's *Offices,* not from the *Whole Duty of Man.* I had indeed the former book in my eye in all my reasonings."[25]

---

[22] *Treatise,* Bk. III, part i, sec. i, pp. 245-246.

[23] Francis Hutcheson, *op. cit.,* Bk. I, part ii, chap. ix.

[24] *Enquiry concerning the Principles of Morals,* Appendix IV, sec. 268, p. 322.

[25] Burton, *op. cit.,* I, 114.

In the *Treatise* there were two sections on natural abilities; in the *Enquiry* the subject is relegated to the appendix and is headed "Of Some Verbal Disputes." It was an effective indirect way of disposing of a theological distinction, where, in his words, "the difference of the objects is imperceptible."

Hume brought a flood of criticism upon himself by repudiating those "monkish virtues" of which Hutcheson had made so much. "For what reason," he asked, "are they everywhere rejected by men of sense, but because they serve to no manner of purpose; neither advance a man's fortune in the world, nor render him a more valuable member of Society."[26] Upon two other less obvious points Hume avoided questions which were tied up with theological conclusions. Hutcheson had criticized Hume for calling justice unnatural. Hume replied that he had not called justice unnatural, but artificial, and added,

> I cannot agree to your sense of natural. 'Tis founded on final causes, which is a consideration that seems to me pretty uncertain and unphilosophical. For pray, what is the end of man? Is he created for happiness, or for virtue? for himself, or for his Maker? Your definition of natural depends upon solving these questions which are endless and quite wide of my purpose.[27]

Hume criticized, too, the technique by which conscience had been made to prove its own supernatural origin. In a letter commenting on Hutcheson's Latin outline of ethics he observed:

> You seem here to embrace Dr. Butler's opinion in his sermons on Human Nature that our moral sense has an authority distinct from its force and durableness; and that because we think it *ought* to prevail. But this is nothing but an instinct or principle, which approves of itself upon reflection, and that is common to all of them.[28]

At every point at which theology and ethics were linked, Hume insisted upon the positivistic point of view. It is perhaps little wonder that his critics were too busy showing

---

[26] *Enquiry concerning the Principles of Morals,* sec. ix, part i, sec. 219, p. 270.

[27] Burton, *op. cit.,* I, 113.

[28] *Ibid.,* pp. 148-149.

that he was an enemy to traditional ethics and theology to take much account of his other contributions. Yet Hume is not merely polemical in the discussion of morals; he does make a positive contribution to ethical analysis. The fact that he admitted something called moral sense and found utility to be an important element in virtue has made a classification of his ethics easy and recognition of his importance correspondingly difficult. He is often too hastily interpreted in the light of the contemporary philosophers of moral sense and the later adherents of utilitarianism, but his moral-sense philosophy is not identical with that of Hutcheson, nor is his utilitarianism much like that of Bentham.

It is not the purpose here to give a detailed criticism of Hume's moral philosophy, but to note those points at which its experimental and humanistic character is conspicuous. Hume's positive contribution to ethics consisted in an appeal to human nature. He refused to go outside that field, and whereas others had appealed to the nature of God, or to the abstract nature of things, to justify morality, Hume had recourse to the nature of man. Hume had found that even the causal inferences of science were based upon human imagination; surely morals must have their foundation in the character of man.

Upon empirical principles, then, Hume's ethics treats of the content of morals, the basis of the moral judgment, and the character of obligation. The content of morals is to be discovered, according to him, by a simple observation and analysis of the qualities of character which are commonly admired. What do men actually conceive to be their whole duty? Hume finds that there are sets of qualities almost universally allowed to constitute personal merit. There are some qualities which are useful either to the individual or to society, and others which are agreeable to a man himself or to those about him. Industry and justice are of the first kind, cheerfulness and good manners of the second. Both types of good, then, are

utilitarian in a broad sense, some being immediately pleasurable, others mediately so. They need not have utility for the individual who judges them to be good. They are approved wherever they appear, irrespective of their effect upon the person evaluating them. Actions remote in place and time and of no immediate personal concern are still approved as good. For this tendency to disinterested evaluation Hume uses different names in different contexts. It is a "moral sense," "sympathy," or "benevolence," but the names are interchangeable. In the *Treatise* the first term is used, but it is dropped in the *Enquiry,* perhaps to avoid confusion with the "moral sense" of writers like Hutcheson who were inclined to conceive it as a specific faculty of soul. With Hume the term "moral sense" never stands for a psychological entity but is rather a name for one kind of human interest. In the *Treatise,* too, there is an attempt to account for disinterested moral judgment by a psychological principle of sympathy, but this likewise is omitted from the *Enquiry,* and sympathy is an equivalent for moral sense.

Benevolence Hume defines carefully in order that it may not be taken for that universal benevolence of the optimists, Shaftesbury, Hutcheson, and Adam Smith. There is no such thing as love for humanity in general nor for specific individuals very remote from us in time and place, nor is love for others the only virtue as Hutcheson had contended. Yet we may approve qualities in those whom we do not love, and the approval may be called benevolence. Has this disinterested approval a basis in some other principle of human nature, or is it to be accounted an original character? Hume's answer is that benevolence is ultimate. He accepted it in this sense as a result of his analysis of human nature which we shall briefly examine.

The original springs of human action, according to Hume's analysis, are certain desires or appetites which move toward their appropriate ends without foresight. Pleasure and pain are secondary goods arising when these

impulses attain their goal. Without such primitive desires self-love would have no meaning. But since it is a fact that we have an interest in the well-being of other persons which cannot be resolved into any combination of other desires, it is reasonable to suppose that this interest is a native character from whose operation a particular pleasure is derived. Hume's statement of the argument is worth quoting since it stands almost alone in eighteenth century moral reflection.

> There are bodily wants and appetites acknowledged by everyone which necessarily precede all sensual enjoyment, and carry us directly to seek possession of the object. Thus hunger and thirst have eating and drinking for their end; and from the gratification of these primary appetites arises a pleasure, which may become the object of another species of desire or inclination that is secondary and interested. In the same manner there are mental passions by which we are impelled immediately to seek particular objects, such as fame or power, or vengeance without any regard to interest; and when these objects are attained a pleasing enjoyment ensues, as the consequence of our involved affection. Nature must, by the internal frame and constitution of the mind, give an original propensity to fame, ere we can reap any pleasure from that acquisition, or pursue it from motives of self-love and desire of happiness. If I have no vanity, I take no delight in praise; if I be void of ambition, power gives me no enjoyment; if I be not angry the punishment of an adversary is totally indifferent to me. In all these cases there is a passion which points immediately to the object. Were there no appetite of any kind antecedent to self-love, that propensity could scarcely ever exert itself; because we should, in that case, have felt few and slender pains and pleasures, and have little misery or happiness to avoid or to pursue.
>
> Now where is the difficulty in conceiving, that this may likewise be the case with benevolence and friendship, and that from the original frame of our temper, we may feel a desire of another's happiness of good, which, by means of that affection, becomes our own good, and is afterwards pursued, from the combined motives of benevolence and self-enjoyment.[29]

The psychological analysis here may be faulty in the number of original tendencies allowed, but the sound ethical

[29] *Enquiry concerning the Principles of Morals,* Appendix II, sec. 253, pp. 301-302.

position is noteworthy. The ends of human action are placed in human desires, and social ends are recognized as having the possible status of disinterested actions. This achievement is the more important since those moralists with whom Hume recognized himself to be most closely allied had judged pleasure and pain to be the original ends of action.[30] There was thus the foundation in Hume's analysis for an empirical and humane ethics and, at the same time, a sounder psychology than his contemporaries were offering. And, finally, Hume's recognition of natural ends enabled him to handle empirically the troublesome questions of the nature of obligation without recourse to supernatural sanctions or to dialectical subtleties. Yet the question of obligation is treated only incidentally and takes the subordinate place usually assigned it in any naturalistic ethics. Here Hume was very close to the classic systems of morals and very far from the *Whole Duty of Man.*

In the section of the *Enquiry* where he treats of obligation, he does nothing more than point out the desirable results which flow from the practice of virtue. The theoretic basis of obligation is not even mentioned. This, indeed, is the common situation when questions of obligation actually arise in life. Where the good is immediate, no problem of ought appears; final ends are self-justifying. More remote goods are justified by their tendency toward other goods, ultimate, or approaching, a final good.

> Ask a man *why he uses exercise:* he will answer, *because he desires to keep his health.* If you then enquire *why he desires health,* he will readily reply, *because sickness is painful.* If you push your enquiries farther, and desire a reason *why he hates pain,* it is impossible he can ever give any. This is an ultimate end, and is never referred to any other object.
>
> Perhaps to your second question, *why he desires health,* he may also reply, *that it is necessary for the exercise of his calling.* If you ask, *why he is anxious in that head,* he will answer, *because he desires to get money.* If you demand *why? It is the instrument of pleasure,* says he. And beyond this it is an absurdity to ask for a reason. . . .

[30] Francis Hutcheson, *A Short Introduction to Moral Philosophy,* Bk. I, chap. i.

Something must be desirable on its own account, and because of its immediate agreement with human sentiment and affection.[31]

Hume's positive treatment of morals has been criticized on the ground that it was thoroughly traditional in spirit, contributing nothing new to the subject. In the eighteenth century to return to a sound tradition was perhaps the best empiricism. Hume tried to free his ethics from a priori considerations and base it upon an analysis of observed human behavior. Thus far, at least, he may be credited with having attained an "experimental" method.

[31] *Enquiry concerning the Principles of Morals,* Appendix I, sec. 244, p. 293.

CHAPTER VI

EMPIRICISM IN POLITICS

A. The State of Political Philosophy during the First Half of the Eighteenth Century

Politics in the eighteenth century had not emerged as a separate discipline but was treated as one phase of general ethics. Consequently, Hume's treatises on morals contain a positive treatment of social phenomena which the specifically political essays merely apply and reinforce.

The eighteenth century, on the whole, was not a period of active theorizing on society and government, but rather one in which accepted theories were applied to the rather petty problems of contemporary politics. In practical politics the earlier part of the eighteenth century was devoted to working out the principles established by the Revolution of 1688. After the establishment of the House of Hanover there was no serious question of the succession to the throne or of the rights of revolution. Whigs and Tories alike accepted the order of things as an established solution of those difficulties which had made the seventeenth century a period of such violent civil disturbance. The old loyalties to the Stuart family had not entirely disappeared, as the Jacobite uprisings of 1715 and 1745 indicated, but they were no longer major forces in political life. It was a matter of frequent comment among political writers at that time, as it has been with historians since then, that the Revolution of 1688 would have been impossible without the support of the Tory party whose ostensible creed included the doctrine of non-resistance to monarchs. Whigs and Tories had united to overthrow the Stuart despotism, and with this practical victory of Whig principles the theoretical differ-

ences between the parties were reduced to a minimum.[1] Tory principles lived on in sentiment but were without much force in the field of action. As a consequence, political discussions centered in the detail of party government and the developing cabinet system. After the complete triumph of the Whigs upon the accession of George I and the exclusion of the Tories from the administration, politics degenerated into bitter factional disputes over matters of policy. The tone of political discussion was personal, violent, and often scurrilous.

In such an atmosphere there was very little to call forth new political theory, but old dogmas flourished naturally. Factions which were animated largely by mere personal interests found it convenient to appeal to the immutable principles of right reason for their justification, and the chief value of a theory of government lay in its availability for such partisan uses.

In the field of political theory Locke's influence upon the eighteenth century can scarcely be overestimated. Events in France gave it enormous force there, as it appeared transmuted in Rousseau. In England, where the urgent questions of political life seemed to have found their answer, Locke's theory served all the purposes to which any theory was likely to be put in such a situation. Two features of Locke's theory were found especially useful: his conception of a social contract and his analysis of the British constitution as a balance of three powers. Both notions were to some extent common property among political thinkers, but it was Locke's name together with the successful revolution of 1688 which gave them vogue. In addition, the *Esprit des lois* of Montesquieu had renewed the popularity of the doctrine of balanced powers.

Not only did political theory serve principally as a means of justifying party procedure but history was perverted to the same uses. Among Tories and Whigs, as traditional

[1] William Dunning, *History of Political Theories from Luther to Montesquieu*, p. 372.

parties, contrary interpretations of history had developed as an important part of political dogma. To be a Whig was to believe that a well-established constitution had been supported by the Tudors and flouted by Charles I. To be a Tory was to hold that the Stuarts had exerted no authority beyond their divine rights, and that James II had been repudiated by the nation only because he had abdicated his authority in his flight to France. Non-partisan history was almost unknown and certain to be rejected when it did appear.

Such disputes have little intrinsic interest. Yet they constituted the atmosphere in which Hume wrote his political essays and they conditioned the form of his treatment of social and historical problems.

Hume's political essays were first published in 1741 and 1742 at the close of that bitter party conflict in which Walpole and Bolingbroke were the chief figures. The reference of the essays to that situation is unmistakable, and their matter and form are in a large measure determined by it. Indeed, Hume first wrote them with the hope that they might be published in periodical form.[2] Bolingbroke had been attainted for his share in the Tory administration of the last years of the reign of Queen Anne and had fled to France where he remained in the court of the Stuart Pretender. There he became thoroughly convinced of the weakness and folly of the Jacobite movement. He returned to England in 1725, and from that time until 1742 he was the center of the opposition group which came to be called the Patriots. Through anonymous contributions to the *Craftsman,* established for that purpose, the Patriots assailed the measures of the Walpole government and proclaimed their own loyalty to the constitution.

The opposition party was very far from being a homogeneous group. It included a number of disaffected Whigs, of whom Pulteney was the chief, a number of moderate

[2] Preface to first volume of *Essays,* quoted by T. H. Grose in "History of the Editions" prefixed to the Green and Grose edition of the *Essays, Moral, Political, and Literary,* I, 41.

Tories of the Bolingbroke type, and a few extreme Jacobites. The political doctrine communicated by such a group could not, in any sense, be called either Whig or Tory. It was none the less definite and rapidly developed into fixed dogma.

During the two years of Bolingbroke's contest with Walpole, two Edinburgh journals, the *Thistle* and the *Patriot*, assiduously reported Bolingbroke's arguments. Indeed the *Patriot* amounted to little but a reprint of the *Craftsman*. Hume may have read Bolingbroke's essays first in that form, for there was no collected edition of them until 1748.

It is not necessary here to inquire into the sincerity of Bolingbroke's expressed opinions or into the extent of his influence. Upon both points there has been radical disagreement.[3] In any case, his writings were the most vigorous and able expression of political opinion at the time, and the questions which he raised defined the limits of political discussion. Nor is there any doubt that his articles in the *Craftsman* furnished the incitement for many of Hume's essays. Bolingbroke's argument is stated exactly, his attitude is described vividly, and his *Dissertation on Parties* is specifically referred to upon crucial points.[4]

Bolingbroke boasts that he is only vindicating the principles of the Revolution as Walpole himself stated them at the trial of Sacheverel in 1709.[5] His party, he asserts, stands for old Whiggism as against all the dangerous innovations made by the Whig administration of his oppo-

---

[3] John Morley called Bolingbroke a "consummate posture maker" and doubted "whether, either Bolingbroke's writings or his machinations ever did Walpole real damage." (*Walpole*, pp. 79, 83.) Churton Collins, on the other hand, believes that it is scarcely possible to overestimate the extent of his influence on public opinion between 1725 and 1742. (*Bolingbroke*, p. 18.)

[4] In the essay called "Politics a Science," Hume quotes Bolingbroke's panegyric on the British Constitution, and in the essay on the "Independency of Parliament" he appends the footnote: "See *Dissertation on Parties*, throughout." (The latter was Bolingbroke's best known work.) For these citations see Green and Grose edition, Vol. I, pp. 108, 121. Mr. Grose makes the comment that the essays frequently read like a running criticism of the *Craftsman*. See "History of the Editions" referred to in note 2, p. 108.

[5] Bolingbroke, *Works*, II, 8.

nent.[6] The constitution established by the Revolution of 1688 now stands in need of defense against the party that was chiefly responsible for overthrowing the Stuarts. The *Dissertation on Parties,* which appeared as a series of letters in the *Craftsman* in 1734, was designed to show "how little is wanting to complete that glorious design [the purpose of the Revolution], to render the British constitution the most perfect system of a free government that was ever established in the world."[7] The peculiar excellence of the constitution, according to Bolingbroke, lies in its provision for the machinery of a mixed government. The liberty of the nation depends upon the perfect balance of the democratic, aristocratic, and monarchic parts of government, and the position of Parliament is particularly important for preserving that balance. "The integrity of Parliament is a kind of Palladium, a tutelary goddess, who protects our state. When she is once removed, we may become the prey of any enemies."[8]

The government of Walpole, representing as it does the power of the Crown, threatens the "freedom and independency of parliament." By maintaining a standing army and controlling appointments and elections, the administration threatens to absorb more than its due proportion of power and to disturb that perfect balance of the constitution, "that noble fabric raised by the labor of so many centuries, repaired at the expense of so many millions, and cemented by such a profusion of blood." In order to accomplish this design of aggrandizement at the expense of Parliament, Walpole has encouraged the division between parties and so has succeeded in breaking the power of the opposition against him.

Part of Bolingbroke's attack upon Walpole consequently takes the form of a *Dissertation on Parties.* Both in this treatise and in his historical essays he argues that the funda-

---

[6] *Ibid.,* pp. 16, 27.
[7] *Ibid.,* p. 9.
[8] *Ibid.,* pp. 137-138.

mental differences between Whigs and Tories disappeared with the Revolution of 1688, and that only two parties actually remain, that of the court, and that of the country. The former is the party of Walpole and of those who stand for the power of the crown against the parliament; the latter is that of Bolingbroke and the people. There is room for only one true party—that of patriots devoted to the preservation of the constitution. Such rhetoric may have justified Johnson's remark that "patriotism is the last refuge of 'scoundrels.' " Bolingbroke's polemic seems now too shallow to have deserved a very serious answer. Yet his influence was evidently considerable in the field of theory if not of action.

B. Hume's Practical Scepticism in Answer to Bolingbroke

Hume's reply to this part of Bolingbroke's argument is interesting only because it shows his practical scepticism at work. Political questions are questions of facts and of facts which are very difficult to determine. Therefore they can never be answered dogmatically in the Bolingbroke fashion.

The questions raised in the *Craftsman,* for instance, all have to do with the proper medium between extremes; in such questions entire certainty is impossible. "All questions concerning the proper medium between extremes are difficult to be decided; both because it is not easy to find words proper to fix this medium and because the good and ill, in such cases, run so gradually into each other, as to render even our sentiments doubtful."[9]

How, then, would Hume treat such questions? There is an excellent example in his discussion of the relative power of Parliament and the Crown. On this point his judgment is opposed to that of Bolingbroke. He thinks that the "share of power allotted by our constitution to the house of commons is so great, that it absolutely commands all the other

[9] *Essays, Moral, Political, and Literary,* I, 121.

parts of the government." In this situation it is fortunate that "the crown has so many offices at its disposal, that when assisted by the distinterested part of the house, it will always command the resolutions of the whole, so far at least, as to preserve the ancient constitution from danger." Whether or not this influence of the crown be called corruption and dependence, as it is by the opposition leaders, makes little difference, for "some degree and kind of it are inseparable from the very nature of the constitution, and necessary to the preservation of our mixed government."[10]

This was an argument which the journalistic friends of Walpole had used against Bolingbroke, and Hume seemed here to range himself on the side of the Whigs of the administration.[11] But he did not seem to plead for one party against another, although he undoubtedly sympathized with Walpole rather than with the Patriots. His main interest was to show that moderation is the suitable attitude in all political matters. The facts and values are too involved to afford a platform for any faction.

> Instead [says Hume] of asserting absolutely, that the dependence of parliament, in every degree, is an infringement of British liberty, the country party should have made some concessions to their adversaries, and have only examined what was the *proper degree* of this dependence, beyond which it becomes dangerous to liberty.[12]

The same conclusion is drawn from the dispute over the constitution. Quoting Bolingbroke's panegyric, Hume observes, "If our constitution does in any degree deserve these eulogies, it would never have suffered a weak and wicked minister to govern triumphantly for a course of twenty years."[13] On the other hand, those who support the minister have equal reason for moderating their zeal. If the constitution is good, a change of ministers will make

---

[10] *Ibid.*, pp. 119-121.

[11] The *London Journal* was one of the administration organs. In the number for September 22, 1733, this argument is stated in almost identical terms: if the king had not many and great places at his disposal, the balance of the Constitution would be destroyed, for the commons would then have all the power.

[12] *Essays, Moral, Political, and Literary,* I, 121.

[13] *Ibid.*, pp. 108-109.

little difference; if it is bad, no administration can mend matters.

In that philosophical age, as Hume called it, Bolingbroke very naturally tried to justify his partisanship by appealing to a general theory of government. The conceptions that he found most useful were drawn originally from Locke and modified somewhat to suit eighteenth century conditions. A social contract between king and people could be made to serve against Walpole in 1734 as well as it had served against James II in 1688. Bolingbroke argued that an original contract could be deduced from the nature of the existing government.

> We may safely defy the asserters of absolute monarchy and arbitrary will, if there were any worth our regard, to produce any one point of time since which we know anything of our constitution, wherein the whole scheme of it would not have been one monstrous absurdity, unless an original contract had been supposed. They must have been blinded therefore by ignorance, or passion or prejudice who did not always see that there is such a thing necessarily, and in the very nature of our constitution; and that they might as well doubt whether the foundations of an ancient, solid building were suited and proportioned by the elevation and form of it, as whether our constitution was established by composition and contract.[14]

He quotes Locke to support the view that the ultimate authority is vested in the people by natural right, and adds as his own interpretation that if the legislative power should give up its rights, as a corrupt parliament might do, the contract between people and government would be broken, and "the people would return to their original, their natural right, the right of restoring the same constitution, or of making a new one."[15]

The same search for authoritative justification, though of a secular kind, is conspicuous in political theory throughout the eighteenth century. There is a continual attempt to find authority outside the empirical situation, a kind of supernaturalism in politics. Society is to be deduced and justified by a hypothetical presocial state; government fol-

[14] Bolingbroke, *Works*, II, 173.
[15] *Ibid.*, p. 225.

lows from a contract. Mr. J. M. Figgis has stated it as follows:

> Like the theory of Divine Right, the doctrine of Natural rights is an attempt to determine a priori the nature of government, the limits of obedience and the principles of state action. It proclaims a system of politics, clear, universal, and unalterable, based not on the uncritical study of Scriptures, but on what are believed to be the teachings of nature and the dictates of pure reason.[16]

Both theories were developed to serve as justification for useful procedure, yet neither recognized explicitly the principle of utility. Hume says,

> Those political writers who have recourse to a promise, or original contract, as the course of our allegiance to government, intend to establish a principle which is perfectly just and reasonable; tho' the reasoning upon which they endeavored to establish it was fallacious and sophistical. They would prove that our submission to government admits of exceptions, and that an egregious tyranny in the rulers is sufficient to free the subject from all ties of allegiance.[17]

Hume had countered Bolingbroke's practical dogmatism with a practical scepticism, a plea for moderate judgments upon complicated political questions. He furthermore opposed Bolingbroke's a priori theory, both in its specific details and in its general assumptions, by a critical analysis and by a positive empirical treatment of the origin and justification of society and government. He shows that current political theories are mythologies, and he argues that the justification of useful political procedure is to be found in the principle of utility itself.

C. Hume's Analysis of Basic Political Concepts: The Empirical Principle of Utility

Government, Hume admits, did arise by a kind of consent, since men are so nearly equal in strength that no one could enforce his will and constitute himself an authority without the acquiescence of the people. Some authority, established, probably, in time of war, was at first fluctuating.

---

[16] J. N. Figgis, *The Theory of the Divine Right of Kings*, p. 161.
[17] *Treatise*, Bk. III, part ii, sec. ix, Vol. II, 313.

> Each exertion of authority in the chieftain must have been particular, and called forth by the present exigencies of the case; the sensible utility, resulting from his interposition made these exertions become daily more frequent; and their frequency gradually produced an habitual, and if you please to call it so, a voluntary, and therefore precarious, acquiescence in the people.[18]

But this original consent was very far from being a legal contract, and it is irrelevant to government as it is now constituted.

If we inquire into the historical origins of existing governments, the facts are quite clearly against the social contract theory. Conquest, usurpation, heredity, and election have all had a part in the establishment of existing régimes. Moreover, election, where it obtains, is invariably based on the consent of the few rather than of the many. "My intention here," says Hume, "is not to exclude the consent of the people from being one just foundation of government where it has place. It is surely the best and most sacred of any. I only claim that it has very seldom had place in any degree and never almost in its full extent."[19] Nor can this conclusion be evaded by saying that the consent of the people is given tacitly through their continued residence under the administration. "We may as well assert, that a man, by remaining in a vessel, freely consents to the dominion of the master; though he was carried on board while asleep, and must leap into the ocean and perish, the moment he leaves her."[20] His criticism is noteworthy for being the first analysis of this conception and for coming at a time when the social contract theory was almost universally held.

At another point, however, Hume was more revolutionary. For he made a positive suggestion which, if understood, would have overthrown the type of political thinking that had resulted in such theories as those of the divine right of kings and the social contract. It was generally assumed that any government must justify itself by an appeal

---

[18] "Of the Original Contract," in *Essays, Moral, Political, and Literary,* I, 445-446.

[19] *Ibid.,* p. 450.

[20] *Ibid.,* p. 451.

to some authority outside the immediate social situation. Hume not only argued that no such authority had been discovered, that the original contract was a fiction, but that the only justification needed for a good government could be found in the existing social facts. Governments are justified by their works, not by faith. This was the principle of utility. Hume thus disposed of what he calls the sophistical reasonings which had been used to bolster up the argument for a limited submission to government. Such an empirical solution could be applied whether the question was that of the duty of obedience to government or of the right to revolt against it.

"If the reason be asked," he says, "of that obedience which we are bound to pay to government, I readily answer, *because society could not otherwise subsist:* and this answer is clear and intelligible to all mankind. Your answer is, *because we should keep our word.* You find yourself embarrassed when it is asked, *why we are bound to keep our word.*"[21] If the question be concerning the limits of government, the answer is the same. "As the obligation to justice is founded entirely on the interests of society, it is evident that, when the execution of justice would be attended with very pernicious consequences, that virtue must be suspended, and give place to public utility in such extraordinary and pressing emergencies."[22]

Utilitarianism in politics, as Hume understood it, was merely an extension of the principles of his empirical ethics. The good in any field of values is self-justifying and requires no outside sanction. Means are to be judged in the light of the ends to which they lead. Hume's ethics and politics are thus nearer to the classical views than to the utilitarianism which followed him in the nineteenth century and which was partially derived from his position.

Years before the publication of the political essays, Hume had given in the *Treatise of Morals* a naturalistic

[21] *Ibid.*, p. 456.
[22] *Ibid.*, p. 461.

account of the character and origin of society and of government. This account was the basis of his practical political attitude just as the contract theory had served as a foundation for Bolingbroke's policies. Political philosophers had looked for the origin of society either in some historical social contract or in human nature. The latter source had the advantage of furnishing an empirical basis for political theory. But those political thinkers who had avoided the difficulties involved in a theory of the historical origin of society had so conceived human nature that the development of society from it seemed a miracle. Individuals of anti-social tendencies had somehow come to be united in a society which required continual justification in terms of unsocial self-interest. On the other hand, when social tendencies such as benevolence were admitted as natural to man, their advocates felt obliged to prove that, by a kind of pre-established harmony, they contributed to the individual's welfare in his original selfish nature.

Hume rejected the notion of an historical genesis of society and looked for those qualities in human nature which would render the existence of communities intelligible. The appearance of society, he believed, was virtually coincident with that of the human race. There is, according to his view, no presocial condition. "'Tis utterly impossible for men to remain any considerable time in that savage condition which precedes society; but . . . his very first state and situation may justly be esteemed social."[23]

The term "state of nature" should not be used, therefore, to designate a mythical presocial condition. It may, however, have meaning as a name for one aspect of human nature, that is, for those unsocial impulses whose regulation depends upon society.

> Human nature being composed of two principle parts,—the affections and the understanding: 'tis certain that the blind motions of the former, without the direction of the latter, incapacitate men for society. And it may be allowed us to consider separately the effects,

[23] *Treatise,* Bk. III, part ii, sec. xxi, II, 265.

that result from the separate operations of these component parts of the mind.[24]

Hume, then, considered society to be a life of affection or of impulse directed and modified by intelligence. Among the impulses, however, he included certain social ones. If there were no impulse toward social ends, men would live in isolation, for, although the advantages of society might be ever so great, they could not be discovered a priori. Hume mentions the biological impulses of sex and family as the basic social tendencies, but he shows that love and hate, benevolence and pity also have a social reference. Even vanity may be called "a bond of union among men."[25] Families and friends form the simplest social units held by interest and affection; beyond the members of these groups benevolence and sympathy operate, but with much less force. Hume, therefore, did not need to struggle with the problem of the origin of society from the life of non-social beings. His question was how highly developed societies with their complexity of laws and institutions come from the simpler social units. And this question *is* one of historical genesis. Society as it now exists is not an immediate but a secondary outcome of human nature. It is in this sense that it may be called artificial. Since the benevolence of man is limited to small groups and at the same time the economic struggle is severe, the need arises for extending social life beyond the limits set by the natural social impulses. In themselves the social tendencies would lead to a continual hostility between the small natural groupings of families and tribes.

The remedy is not derived from nature but from *artifice;* or more properly speaking nature provides a remedy in the judgment and understanding for what is irregular and incommodious in the affections. For when men, from their early education in society, have become sensible of the infinite advantages that result from it, and have besides acquired a new affection to company and conversation; and when they have observed, that the principal disturbance in society

[24] *Ibid.*, pp. 265-266.
[25] *Ibid.*, p. 264.

arises from those goods, which we call external and from their looseness and easy transition from one person to another; they must seek for a remedy, by putting these goods, as far as possible, on the same footing with the fixed constant advantages of the mind and body. This can be done after no other manner, than by a convention entered into by all the members of the society to bestow stability on the possession of those external goods.[26]

Property and justice then arise. Such a convention, however, is not the work of the intellect in opposition to the affections. "There is no passion, therefore, capable of controlling the interested affection but the very affection itself, by an alteration of its direction."[27]

Government arises after property and justice have been established and serves to "protect men in those conventions they make for their mutual interest." But its power is more than simply regulative. It leads to further conventions and to new social activities. "Thus bridges are built; harbours opened; ramparts raised; canals formed; fleets equipped; and armies disciplined."[28]

In the political essays, written probably in answer to Bolingbroke, Hume's empiricism amounted to little more than a clear-headed analysis of the obvious facts of political life. In its wider aspects his political theory was opposed to the dominant one in the basic matter of technique. Politics, said Hume, is a science dealing with matters of fact, and no social facts are simple enough to warrant the extreme contentions which factions make. Scepticism is the only proper attitude, that is, a certain humility of mind and modesty of statement: a judicious balancing of opposing claims.

Public Spirit, methinks, should engage us to love the Public, and to bear an equal affection to all our Country-Men; not to hate one-half of them, under Pretext of loving the Whole. This Party-Rage I have endeavored to repress, as far as possible; and I hope the Design will be acceptable to the moderate of both Parties; at the same Time, perhaps it may displease the Bigots of both.[29]

---

[26] *Ibid.*, p. 262.
[27] *Ibid.*, p. 265.
[28] *Ibid.*, p. 304.
[29] Preface to first edition of *Essays, Moral, Political, and Literary.*

CHAPTER VII

HUME'S HISTORICAL WRITING

A. Historical Writing in England before Hume

In the catalogue of the British Museum Hume is classified as an historian, a designation which perhaps seemed more accurate to his contemporaries than to us. Hume's *History of England* was his most popular work and was used as a college text until late in the nineteenth century. It has the merits of interest and an easy literary style, and its popularity was partly due to these. It occupied an outstanding position because it was virtually the only history which was not written to justify one of the controlling political parties. That is not to say that it had no partisan bias; yet it was not an exercise in partisan politics as most of the earlier histories were.

The *History of England* has a place in these essays for two reasons: first, history was treated as a branch of politics, and secondly, because Hume was accused of having thrown his empirical method overboard when he came to write on historical matters.[1] We shall therefore examine briefly the influences under which the history was written and its relation to Hume's general method.

Hume's first essays were published in 1741 and 1742. They apparently aroused no accusation of partisanship, although, as we have seen, Hume's arguments on ques-

[1] Burton in his life of Hume finds the tendency of the *History* "unexpected and inexplicable" in view of Hume's liberal views expressed in the political essays. (I, 402.) There is the often quoted remark of Horace Walpole's that Hume "mounted a system in the garb of a philosophic empiric but dispensed no drugs but what he was authorized to vend by a Royal Patent." (Letter, October 27, 1783, quoted in John Nichols' *Literary Anecdotes of the Eighteenth Century,* IV, 709.) Lord Holland criticized Hume for his silly partiality to kings. (*Memoirs of the Whig Party,* p. xxi.) Hallam accused him of deliberate distortion (*The Constitutional History of England,* I, 262), and Macaulay referred to him as the accomplished advocate (*Critical, Historical, and Miscellaneous Essays,* I, 42).

tions of policy were more favorable to Whigs than to Tories. The first volumes of the *History of England, The History of the Stuarts,* appeared in 1754 and 1756. It immediately aroused criticism as a Tory document, and virtually all later critics have concurred in that judgment. In the earlier political essays and in the *Treatise on Morals* Hume had undermined the most sacrosanct of Whig dogmas, the theory of an original contract, without once being accused of Toryism. It seems a curious anomaly that the history should have aroused such bitter criticism.

There is, however, an easy explanation in the general state of political thinking that we have already noted. Political theory was at such a low ebb that dogmas could be attacked without much notice. The practical differences in policy between Whig and Tory were negligible. The two parties were therefore differentiated on traditional and social, rather than on theoretical, grounds. The landowners were Tory because their fathers had been so before them. The commercial classes and a few landed families were Whigs on the same grounds. The economic and social differences between these two groups were still basic enough to give a solidarity to parties without producing any very great distinctions in national policy. This is a situation which arises very commonly when parties have outlived the conflicts which first produced them. A party living upon traditions requires little theoretical justification for itself, but it is certain to have an interpretation of history which it holds to be above criticism. This was the condition when Hume wrote his *History of England.* It was easier to gain the appellation of Tory by commenting favorably upon Charles I than by showing scepticism toward the measures of a Whig government, or by demolishing the theory of an original contract. This Hume soon learned.

B. Hume's Treatment of the Whig and the Tory Interpretations of English History

The first volume (1754) of the *History of England* covered the reigns of James I and Charles I. Hume com-

mented on its reception in a letter to the Earl of Balcarras. "I observe some of the weekly papers have been busy with me. I am as great an atheist as Bolingbroke; as great a Jacobite as Carte [the Jacobite historian]."[2] A second volume on the last two Stuarts aroused less criticism, but the third, covering the Tudor period, brought the storm again. As Hume himself pointed out, the treatment of the reign of Elizabeth fortified the objectionable arguments of the first volume. The volumes which aroused the most violent criticism were those which dealt directly or indirectly with one of the historical questions most in dispute between Tories and Whigs, the question of the degree of guilt in the actions of Charles I. All other questions were subsidiary to this one.

From the standpoint of the Whig party the orthodox view of the civil struggle of the seventeenth century was that Charles I had deliberately violated the liberties of the people as expressed in the Constitution; the rebellion against him, if not his execution, was therefore justified. Charles II and James II had committed the same folly with the added menace of Catholicism. The original contract between king and people had been reaffirmed by the latest contract between William of Orange and the nation, expressed in the Bill of Rights.

The Tory view was, of course, less openly expressed after the early part of the century, but it continued to be held. Charles I had died as a martyr to the cause of just sovereignty. The right to the throne was indefeasible and therefore continued to inhere in the family of the Stuarts. And although the non-Jacobites among the Tories gave their loyalty to the House of Hanover, they did so on the ground that James II had abdicated his throne by his flight. Those who rejected this subterfuge and adopted the Whig view as Bolingbroke had done were often violent partisans of Charles I, in spite of the inconsistency of this position.

The histories of England which had hitherto appeared

[2] John Hill Burton, *Life and Correspondence of David Hume,* I, 412.

had not only shown a strong bias toward one or the other of these interpretations but had been written for the expressed purpose of justifying a party. Salmon had written "vindicating the just right of the Established Church and the prerogative of the crown against the wild schemes of enthusiasts and levellers," and his example had been widely followed.[3] On the other side, Burnet, Oldmixon, and Rapin had upheld Whig doctrine.[4] Political pamphlets often took the form of historical studies; Bolingbroke wrote on the history of parties, and his opponents answered him in the same terms. It seems probable that if it had been possible for anyone at the time to write a straightforward historical account of the seventeenth century in England, that account would have been hailed by Whigs and Tories alike as violently prejudiced in favor of their opponents. Something of this difficulty is evident when we remember that subsequent historians have not always succeeded in treating the period without being prejudiced by their liberal or conservative opinions.

It cannot be said that Hume succeeded in writing a history that could meet the standards of later criticism. He did not avail himself of all the evidence at hand nor use his sources with a full understanding of their relative value.[5] In the writing of history, indeed, Hume was very much a part of his age. His empiricism consisted in nothing more than a judicious balancing of rival party claims. In his mind, to write a non-partisan account of the seventeenth century meant to act as judge between parties, not to conduct an inquiry independent of party interpretations.

Here his motive was exactly that of the political essays in answer to Bolingbroke. In the essay on the "Coalition of Parties" this idea is formally stated.

> There is no more effectual method of promoting so good an end [the abolition of the old party differences] than to prevent all unreasonable

[3] *Ibid.*, I, 402.
[4] William Hunt, "Historians," in *Cambridge History of English Literature*, Vol. X, chap. xii.
[5] *Ibid.*

insult of one party over the other, to encourage moderate opinions, to find the proper medium in all disputes, to persuade each that its antagonist may possibly be sometimes in the right, and to keep the balance in the praise or blame which we bestow on either side. The two former essays, concerning the original contract and passive obedience, are calculated for this purpose with regard to the philosophical and practical controversies between the parties, and tend to show that neither side are in these respects so fully supported by reason as they endeavor to flatter themselves. We shall proceed to exercise the same moderation with regard to the historical disputes between the parties.[6]

In the attempt to moderate the claims of parties, however, Hume continually found that Whig, rather than Tory, interpretations were invalid. In the volumes of the *History of England* devoted to the reigns of James I and Charles I Hume presented a view of the political situation very far indeed from the Whig doctrine. He argued that the constitution at that time was much less settled in its outlines than the later critics of the Stuarts had supposed. Neither the rights of the parliament nor of the people were clearly defined in their details, and there was consequently room for considerable difference of opinion as to their extent. Charles I, therefore, could not be accused of deliberate tyranny, even though his demands exceeded the limits set by expediency and precedent. He merely followed a course which education and tradition suggested to him as being within his rights. Neither he nor his father had introduced an unexampled despotism.

The volume on the Tudors elaborated this view.

> The party among us [says Hume] who have distinguished themselves by their adhering to liberty and popular government have long indulged their prejudice against the succeeding race of princes by bestowing unbounded panegyrics on the virtue and wisdom of Elizabeth.[7]

They extolled her for a quality, which, of all others, she least possessed: a tender regard for the constitution and

[6] *Essays, Moral, Political, and Literary,* I, 464.

[7] *History of England,* V, 389-390. See also Appendix to "Reign of James I," VI, 96-104.

a concern for the liberties and privileges of her people.

The reigns of the Tudors furnished undoubted precedents to which Charles I could appeal, but the Tudor monarchs, in turn, were carrying on a tradition from a still earlier period. Hume asserted that there had never been in England an established system of government which distinguished clearly the spheres of monarchical and popular control. "The English Constitution like all others has been in a state of constant fluctuation."[8] Both monarchical and popular instruments of control could claim a long history and precedents were numerous on either side. While in the reign of Elizabeth the people could point to statutes of rights as early as the Magna Charta, the monarch could show that such institutions as the Court of High Commission possessed an equal antiquity.

When Charles I came to the throne, he proceeded in accordance with established usage and was, in a measure, excusable in his attitude toward the unexpected demands for public control. When, however, he found all his projects thwarted, he adopted a rigid theory of prerogative which in itself could not be condoned. Hume thus justified the action of Charles I only in so far as it was due to the unsettled state of the constitution and to the tradition to which the king was heir. The *History,* moreover, explicitly condemns the extreme theories of royal prerogative which Charles I came to hold. "There is nothing," says Hume, "which tends more to excuse if not justify the extreme rigor of the Commons toward Charles than his open encouragement and avowal of such general principles as were altogether incompatible with a limited government."[9] Yet even for this attitude in Charles, Hume finds some excuse. He asserts with unjustified optimism that "had the limitations on prerogative been quite fixed and certain, his [Charles's] integrity had made him regard as sacred the boundaries of the constitution."[10]

---

[8] *Ibid.,* Vol. V, footnote, p. 391.
[9] *Ibid.,* VI, 192.
[10] *Ibid.,* VII, 144.

In his discussion of the trial and execution of Charles I Hume went directly against the reigning theory of history. While he did not deny that there had been cases in which the death of the monarch was absolutely demanded for the sake of public safety, he contended that Charles I was far from meriting such an extreme measure. And he concluded: "We stand astonished, that among a civilized people, so much virtue could ever meet with so fatal a catastrophe."[11]

Every opinion regarding political theory expressed in this discussion of the first Stuart kings was thus entirely consonant with his earlier political views. He thought of societies and governments as the products of slow growth, never as the deliberate creations of individuals. Institutions, for the very reason that they have a history, cannot be judged by an abstract logical standard but must be evaluated according to usefulness. Since both popular and royal control are matters of tradition and precedent, their boundaries are fluctuating and cannot be rigidly determined a priori. Holding this view, Hume could not reasonably censure individual administrators of government with the abandon common in party historians. He accurately described his position when he said, "My views of things are more conformable to Whig principles; my representations of persons to Tory prejudices. Nothing can so much prove that men commonly regard more persons than things, as to find that I am commonly numbered among the Tories."[12]

The second volume of the *History* dealing with the reigns of Charles II and James II brought much less criticism from the Whigs since it was in the main consonant with the Whig view. "I have always said, to all my acquaintance, that if the first volume bore a little of the Tory aspect, the second would be as grateful to the opposite party. The two first princes of the house of Stuart were certainly more excusable than the two second. The constitution was in

[11] *Ibid.*, VII, 149.
[12] Burton, *op. cit.*, II, 11.

their time, very ambiguous and undetermined; and their parliaments were in many respects, refractory and obstinate."[13]

In the discussion of the Revolution of 1688 Hume was safe from any reproach. Although he concluded in the "Essay of the Protestant Succession" that a patriot of the days of James II might have had considerable difficulty in choosing between the house of Stuart and that of Hanover, he did not belittle the advantages of the existing Hanoverian establishment.

The treatment in the history was even more positive.

> By deciding many important questions in favor of liberty, and still more, by that great precedent of deposing one king and establishing a new family, it gave such an ascendant to popular principles as has put the nature of the English constitution beyond all controversy. And it may safely be affirmed, without any danger of exaggeration, that we in this island have ever since enjoyed, if not the best system of government at least the most entire system of liberty, that ever was known among mankind.[14]

While this was very far from the kind of exaggeration which Bolingbroke allowed himself to use in party argument, it was unfeignedly in accord with the current judgments of the nature and the value of the Revolution.

If any evidence is lacking to show that the Whig objections to Hume were based not on his political theory but on his treatment of specific historic questions, it may be found in Hume's discussion of Hobbes. For there he expresses unequivocally his dislike for extreme theories of royal prerogative. In view of Hume's anti-theological bias and his naturalism in ethics we might expect that he would find much of value in Hobbes. Apparently, however, he accepted the popular and very superficial understanding of Hobbes's political doctrine. He considered his works as nothing more than an apology for tyranny.[15]

---

[13] *Ibid.*, I, 416.

[14] *History of England,* VIII, 308.

[15] *Ibid.*, VII, 340. "Hobbes's politics are fitted only to promote tyranny, and his ethics to encourage licentiousness."

In spite of Hume's strong feeling for historical values in some fields he was quite unable to give an historic treatment of Tory theory as differentiated from practice. The idea of the divine right of monarchy was always an abstract conception to be critically treated. He could give a just account of the rise of the original contract theory, but the theory of divine right was always treated as little more than a fanatical aberration.

C. The Effect of Contemporary Political Events upon Hume's Views: The Theoretic Basis of His Conservatism

While Hume's general political position in the history was not so different from his earlier views as has been supposed, it is true that under the stress of contemporary events in England his liberalism suffered a change which affected the emphasis in the history.

In a note appended to later editions of his historical essay on "The Parties of Great Britain" Hume excused himself for certain errors that he attributed to his early Whig prejudices, which, according to his own explanation, were, at the time the essay was first written, "almost universal in this kingdom."[16] Apparently the errors referred to appeared in the discussion of the rise of parties under Charles I. In the early essay Hume had spoken of the constitution as existing in a kind of confusion before that period, but he added, "yet the subjects possessed many noble privileges, which, though not exactly bounded and secured by law, were universally deemed, from long possession to belong to them as their birthright." This is very different indeed from the treatment of the same point in the *History of England*. There are other changes of more importance. Hume became increasingly dubious of the wisdom of the mass of citizens—less a democrat, if we may use a word not common in his time. Three long paragraphs in the essay on "The Freedom of the Press" were omitted from the

[16] *Essays, Moral, Political, and Literary*, I, 141.

final and authoritative edition. Two passages from these paragraphs give their substance.

It has been found, as the experience of mankind increases, that the people are no such dangerous monster as they have been represented, and 'tis in every respect better to guide them like rational creatures than to drive them like brute beasts. . . . England has set an example of civil liberty; and though this liberty seems to occasion some small ferment at the present, it has not yet produced any pernicious effects and it is to be hoped that men, being every day more accustomed to the free discussion of public affairs, will improve their judgment of them, and be with greater difficulty seduced by every idle rumor and popular clamor. . . .[17]

This peculiar privilege of Britain is of a kind that cannot easily be wrested from us, and must last as long as our government remains in any degree free and independent. But if the liberty of the press ever be lost, it [liberty] must be lost at once.[18]

Now, while there is no subsequent discussion of the same points here touched upon, the whole tone of the history, of the later essays, and of the private letters is opposed to this expressed confidence in the people and to this interest in liberty. All the emendations of the *History of England* were without exception in the direction of conservatism. This shift of emphasis may have been due in part simply to a maturing of views. It is certain, however, that Hume was fortified in his later position both by the attacks of his critics and by the course of public affairs. He sometimes took malicious pleasure in disavowing the Whig views. In a letter written March 12, 1763 to Gilbert Elliot he says:

In this new edition I have corrected several mistakes and oversights which had chiefly proceeded from the plaguey prejudices of Whiggism, with which I was too much infected when I began this work. . . . I now find . . . that I really deserved the name of a party writer, and boasted without any foundation of my impartiality.[19]

This letter was written at an interesting juncture in public affairs, a month before the famous *North Briton,* No. 45, of John Wilkes which was the signal for a popular

---

[17] *Ibid.,* I, 97 f.
[18] The three paragraphs are quoted by Burton, *op. cit.,* I, 137-139.
[19] *Ibid.,* II, 144-145.

clamor against the government that occupied the attention of the administration until 1770. On April 23, 1763, Wilkes published in the *North Briton* a criticism of the king's address to Parliament. He justified his procedure on the ground that the address was, in reality, an expression of the minister and not of the king, and that it was, consequently, as open to criticism as any other statement made by the government. Wilkes was promptly arrested upon a general warrant but released by the court. The House of Commons then expelled him from its membership on January 19, 1764. Four years later he was re-elected to the House and again expelled. After still another re-election, he was finally declared by the House to be ineligible for membership in that body. In spite of this declaration, Wilkes returned once more only to have his election declared void and his competitor seated in his place (April 14, 1769).[20]

The Wilkes affair brought into prominence the whole question of the right of constituencies to send whom they chose to the House of Commons. For almost the first time in English history there was open hostility between the Parliament and the electorate. There was much discussion of the rights of "the people." A strong movement developed for closer control of representatives by their constituents. In some cases the electorate wished their representatives to act only upon specific instructions from those who had returned them for Parliament.

Throughout the course of the dispute over Wilkes there was repeated rioting in London. Economic causes also led to a period of considerable lawlessness, sufficient to cause widespread comment.[21] These events came too late to account wholly for Hume's distrust of the action of the masses, yet they certainly affected strongly many of his later judgments and bore out those opinions which he

[20] For the Wilkes controversy see William E. H. Lecky, *History of England in the Eighteenth Century,* III, 76-88, 139-166, 177.

[21] *Ibid.*

already held. At the height of the Wilkes controversy in 1769, he wrote:

This madness about Wilkes excited first indignation, then apprehension; but has gone to such a height that all other sentiments with me are buried in ridicule. . . . However, I am afraid my mirth will soon be spoilt and affairs become quite serious; for I am well assured that Lord Chatham will . . . creep out from his retreat and appear on the scene. . . . This villain is to thunder against the Bill of Rights in not allowing the county of Middlesex [which had returned Wilkes] the choice of its member! Think of the impudence of that fellow, and his quackery and his cunning and his audaciousness; and judge of the influence he will have over the multitude.[22]

In 1770 when the Wilkes party was most clamorous and Pitt was in violent opposition to the government which had succeded in expelling the popular hero from the House of Commons, Hume wrote with great bitterness of the chimerical government which has become "too perfect in point of liberty, for so rude a beast as an Englishman."

Hume recognized the influence which his feeling in the matter was likely to have upon his corrections of the *History of England.* "I am running over against the last edition of my History in order to correct it still further. I wish that my indignation at the present madness, encouraged by lies, calumnies, imposture, and every infamous act usual among popular leaders, may not throw me into the opposite extreme."[23]

Hume's dislike for public agitation and his distrust of popular movements had an intellectual foundation in his view of human nature. Political action he believed was compounded of habit and opinion; it was never the result of reason acting alone.

In the essay upon "First Principles of Government" appears the statement: "Upon these three opinions, therefore, of public interest, of right to power, and of right to property, are all governments founded, and all authority of the few over the many."[24] This is Hume's conception of the actual

[22] John Hill Burton, *op. cit.*, II, 423.
[23] *Ibid.*, II, 434.
[24] *Essays, Moral, Political, and Literary*, I, 111.

foundation of government. Opinions of right to power and right to property are themselves based on habit and education. As has been pointed out in the discussion of the political essays, all allegiance, according to Hume, is fundamentally a slowly developed social attitude. Justice is not a natural but an artificial virtue. It is a matter of tradition and habit.

Since, then, government is founded on opinion, there is a real danger in instructing the people in the right of resistance. At any rate, it is obedience and not resistance which should be inculcated, and nothing can be "more preposterous than an anxious care and solicitude in stating all the cases, in which resistance may be allowed."[25] When the exceptions occur they will necessarily be so evident that the people will rise against the ruler.

In the essay, "Of Passive Obedience," Hume elaborates this position. "I confess, that I shall always incline to their side, who draw the bonds of allegiance very close. For besides the mischief of civil war . . . it is certain, that, where a disposition to rebellion appears among any people, it is one chief cause of tyranny in the rulers."[26]

Hume's comments upon men and policies in the *History of England* may be taken as a further interpretation of his views of human nature and of his general principle of utility. It is clear that the later utilitarians did not see human nature as he did, and that fact gave their interpretation a wholly different aspect. With them utilitarianism became rationalistic dogma and a tool for obtaining practical results which Hume would have rejected. His logical successor was not Bentham but Burke. Hume's conservatism came, not from a political bias toward the Tory party, but from a basic belief that human nature is a complex of habits rooted in social life and tradition, not to be lightly disturbed.

---

[25] *Ibid.*, I, 462.

[26] In Vol. VII, chap. i, p. 228, of the *History of England*, Cromwell is cited as an illustration of this rule.

CONCLUSION

The interest which Hume's work aroused in the eighteenth century was due to the fact that he went against the common current of thought in whatever field he entered. This opposition was most conspicuous when he applied his technique to theology, and consequently it was on that subject that he was most often attacked. There is no evidence at all in the numerous answers to him which appeared in his lifetime that the general bearings of his empiricism were understood.

Yet it was in attack upon accepted methods and tenets that Hume was, after all, most successful. He meant to establish the experimental method in moral subjects and did make, as we have seen, real contributions to an empirical and humane ethics; but that turned out to be his least important accomplishment. On the road to this end he stopped to show that the a priori rationalistic method could not justify itself and that reasonings about matters of fact must, in the nature of things, be hypothetical. Upon this point he argued so successfully that his readers ever since have pretty much ignored the actual application of empiricism to moral subjects.

This accomplishment of Hume's *Treatise* and *Enquiry* need not be obscured by the fact that it was expressed in eighteenth century idiom. It grew out of the contemporary background and shows its origin. Hume accepted Locke's assumption that the objects of knowledge are ideas. He accepted the current notion that objects are entirely discrete. The two together led to what sometimes seems the extremity of nominalism.

In all of this Hume was very definitely in conformity with his century. Yet in spite of these presuppositions, Hume's main contention is that reasonings about causes and effects are valid because the operations of the mind follow the order of nature. He might have stated it with less inconsistency had not the exponents of reason demanded

too much. They wanted, and thought they had found, a type of logical structure in the universe that would allow the philosopher to deduce everything from one fact, if only he were not limited by the finitude of his own mind. To Hume their faith seemed thoroughly unjustified, and pernicious in its effects. He denied this type of rationality in such unqualified terms that it was easy later for critics to assert that he had denied reason altogether. Indeed, Hume himself felt that he had. His scepticism, however, was of a kind to which scientists and philosophers have had to come when they have analyzed their own methods.

"The existence, therefore, of any being can only be proved by argument from its cause or its effect; and these arguments are founded entirely on experience. If we reason *a priori,* anything may be able to produce anything. The falling of a pebble may, for aught we know, extinguish the sun; or the wish of a man control the planets in their orbits. It is only experience which teaches us the nature and bounds of cause and effect, and enables us to infer the existence of one object from that of another."[27]

---

[27] *Enquiry,* sec. xii, part iii, sec. 132.

BIBLIOGRAPHY

David Hume: Writings, Letters, Biographies

Hume, David. *A Treatise of Human Nature, and Dialogues concerning Natural Religion.* Edited by T. H. Green and T. H. Grose. 2 vol. London, 1890.

———. *Essays, Moral, Political, and Literary.* Edited by T. H. Green and T. H. Grose. 2 vol. London, 1889.

———. *A Treatise of Human Nature.* Edited by L. A. Selby-Bigge. Oxford, 1896.

———. *Enquiries concerning the Human Understanding and concerning the Principles of Morals.* Edited by L. A. Selby-Bigge. Oxford, 1902.

———. *History of England, from the Invasion of Julius Caesar to the Revolution in 1688.* 8 vol. London, 1822.

———. *Letters of David Hume and Extracts from Letters Relating to Him.* Edited by J. Murray. London, 1842.

———. *Letters of David Hume to William Strahan.* Edited by G. B. Hill. Oxford, 1888.

———. *Private Correspondence of David Hume with Several Distinguished Persons between the Years 1761 and 1776.* London, 1820.

Burton, John Hill. *Life and Correspondence of David Hume.* 2 vol. Edinburgh, 1846-1850.

Ritchie, T. E. *An Account of the Life and Writings of David Hume.* London, 1807.

PART I

Primary Sources

Adams, William. *Essay on Mr. Hume's Essay on Miracles.* London, 1752.

D'Alembert, Jean le Rond. "Élémens de philosophie," in *Oeuvres, philosophiques, historiques, et littéraires.* 2d edition. 5 vol. Paris, 1821-1822.

Allen, John. *Illustrations of Mr. Hume's Essay concerning Liberty and Necessity, in Answer to Dr. Gregory of Edinburgh.* London, 1795. (Published under the pseudonym, Necessitarian; catalogued in the Library of the University of Edinburgh as by John Allen.)

Anderson, George. *Analysis of the Moral and Religious Sentiments of Sopho and David Hume.* Edinburgh, 1755. (Published anonymously; catalogued as by Sopho.)

———. *An Estimate of the Profit and Loss of Religion Personally and Publicly Stated. Illustrated with Reference to Essays on Morality and Revealed Religion.* Edinburgh, 1753. (Library of the University of Edinburgh.)

———. *Complaint Made to Presbytery of Edinburgh Verified.* Edinburgh, 1756.

Balfour, James. *A Delineation of the Nature and Obligation of Morality.* 1763.

Baxter, Andrew. *An Enquiry into the Nature of the Human Soul, Wherein the Immateriality of the Soul Is Evinced from the Principles of Reason and Philosophy.* Edinburgh, 1730. (Published anonymously.)

BAYLE, PIERRE. *Dictionaire historique et critique.* Amsterdam and Leyden, 1730.

BENTLEY, RICHARD. *Works.* Edited by A. Dyce. 3 vol. London, 1836-1838.

BERKELEY, GEORGE. *Works.* Edited by Alexander C. Fraser. 4 vol. Oxford, 1871.

BLAIR, HUGH. *Observations on a Pamphlet Entitled, An Analysis of the Moral and Religious Sentiments Contained in the Writings of Sopho and David Hume.* Edinburgh, 1755. (Published anonymously.)

BROWNE, PETER. *The Procedure, Extent, and Limits of the Human Understanding.* 2d edition. London, 1729.

BUTLER, JOSEPH. *The Analogy of Religion, Natural and Revealed, to the Constitution and Course of Nature; to Which Are Added, Two Brief Dissertations: On Personal Identity, and On the Nature of Virtue; and Fifteen Sermons.* London, 1878.

CAMPBELL, GEORGE. *Dissertation on Miracles.* Edinburgh, 1762.

CHEYNE, GEORGE. *Philosophical Principles of Religion, Natural and Revealed.* London, 1725.

CLARKE, SAMUEL. *Works,* edited by Benjamin Hoadly. 4 vol. London, 1738-1742.

———. *A Collection of Papers Which Passed between the Late Learned Mr. Leibniz and Dr. Clarke in the Years 1715 and 1716, Relating to the Principles of Natural Philosophy and Religion.* London, 1717.

CLAYTON, ROBERT. *Some Thoughts on Self-Love, Innate Ideas, etc.* Dublin and London, 1753. (Published anonymously.)

COLLINS, ANTHONY. *Philosophical Inquiry concerning Human Liberty and Necessity.* 2d edition. London, 1717.

CUDWORTH, RALPH. *A Treatise concerning Eternal and Immutable Morality.* London, 1731.

———. *Works.* 4 vol. London, 1829.

DESAGULIERS, JOHN T. *The Newtonian System of the World, the Best Model of Government: an Allegorical Poem.* London, 1728.

DODWELL, HENRY. *Christianity Not Founded on Argument.* London, 1742. (Published anonymously.)

GLANVILL, JOSEPH. *Scepsis Scientifica: or Confest Ignorance, the Way to Science; in an Essay of the Vanity of Dogmatizing and Confident Opinion.* Edited by John Owen. London, 1885.

GRAVESANDE, W. J. 's. *Physices elementa mathematica experimentis confirmata; sive introductio ad philosophiam Newtonianam.* 2 vol. The Hague, 1720.

GREGORY, JAMES. *Philosophical and Literary Essays.* 2 vol. Edinburgh, 1792.

HURD, RICHARD. *Remarks on Mr. David Hume's Essay on the Natural History of Religion.* London, 1777.

JACKSON, JOHN. *A Dissertation on Matter and Spirit, with Some Remarks on a Book Entitled: An Enquiry into the Nature of the Human Soul (A. Baxter).* London, 1735.

KEILL, JOHN. *Introductio ad Veram Physicam.* Oxford, 1702.

———. *An Introduction to Natural Philosophy.* 5th edition. London, 1758.

LEIBNIZ, GOTTFRIED W. *The Monadology and Other Philosophical Writings.* Translated by Robert Latta. Oxford, 1898.

———. *The Philosophical Works.* Translated from the original Latin and French with notes, by George Martin Duncan. 2d edition. New Haven, 1908.

LOCKE, JOHN. *Works.* 11th edition. 10 vol. London, 1812.

———. *Essay concerning the Human Understanding.* Edited by Alexander C. Fraser. 2 vol. Oxford, 1894.

MacLaurin, Colin. *An Account of Sir Isaac Newton's Philosophical Discoveries.* Edinburgh, 1748.

Malebranche, P. *Dialogues on Metaphysics and on Religion.* Translated by Morris Ginsberg. London, 1923.

————. *De la recherche de la vérité.* Translated by T. Taylor. London, 1694.

Maupertuis, Pierre Louis M. *Oeuvres.* 4 vol. Lyon, 1768.

More, Henry. *A Collection of Several Philosophical Papers,* 4th edition, London, 1712.

Newton, Sir Isaac. *Mathematical Principles of Natural Philosophy.* Translated into English by Andrew Motte. London, 1729. First American edition. New York, 1848.

————. *Opticks, or a Treatise of the Reflections, Refractions, Inflections, and Colours of Light.* London, 1704. 2d edition, London, 1717. 3d edition, London, 1721. 4th edition, London, 1730.

Pemberton, Henry. *A View of Sir Isaac Newton's Philosophy.* London, 1728.

Rohault, J. *System of Natural Philosophy, Illustrated with Dr. Clarke's Notes Taken Mostly out of Sir Isaac Newton's Philosophy.* Translated into English by John Clarke D. D. London, 1723.

Rutherforth, Thomas. *A System of Natural Philosophy.* 2 vol. London, 1748.

————. *Credibility of Miracles Defended against the Author of Philosophical Essays.* Cambridge, 1751.

Tindal, Matthew. *Christianity as Old as Creation, or The Gospel a Republication of the Religion of Nature.* London, 1730.

Toland, John. *Christianity Not Mysterious.* London, 1696.

————. *Pantheisticon, sive formula celebrandae sodalitatis Socraticae.* London, 1720. English translation. London, 1751.

Voltaire, François M. Arouat de. *The Elements of Sir Isaac Newton's Philosophy.* Translated from the French by John Hanna. London, 1738.

Secondary Works

Ball, W. W. Rouse. *Essay on Newton's Principia.* London and New York, 1893.

————. *History of the Study of Mathematics at Cambridge.* Cambridge, 1889.

Bourne, H. R. Fox. *The Life of John Locke.* 2 vol. London, 1876.

Bloch, Leon. *La philosophie de Newton.* Alcan, 1908.

Bouillier, Francisque. *Histoire de la philosophie Cartesienne.* 2 vol. Paris, 1853.

Brewster, Sir David. *Memoirs of the Life, Writings and Discoveries of Sir Isaac Newton.* 2d edition. St. Andrews, 1855.

Brown, Peter Hume. *History of Scotland from the Revolution of 1689 to the Disruption of 1843.* 3 vol. Cambridge, 1899-1909.

Burnet, Gilbert. *History of My Own Times.* Edited by Sir Thomas Burnet. London, 1724-1734.

Burton, John Hill. *The History of Scotland.* London, 1873. 2d edition. 8 vol. Edinburgh and London, 1873.

Burtt, Edwin A. *The Metaphysical Foundations of Modern Physical Science.* London and New York, 1925.

Carlyle, Alexander. *Autobiography Containing Memorials of the Men and Events of His Time.* Edited by J. H. Burton. Edinburgh and London, 1860. First American edition. Boston, 1861.

CASSIRIR, ERNST. *Das Erkenntnisproblem in der Philosophie und Wissenschaft der neueren Zeit.* 3 vol. Berlin, 1906-1920.

Dictionary of National Biography. Articles on Samuel Clarke, Roger Cotes, John Keill, Henry Pemberton, Colin MacLaurin, and others.

FAGUET, ÉMILE. *Dix-Huitième Siècle.* Paris, 1890.

GRAHAM, HENRY GREY. *Scottish Men of Letters of the Eighteenth Century.* London and New York, 1908.

GRANT, ALEXANDER. *Story of the University of Edinburgh.* 2 vol. London, 1884.

GRAY, G. J. *A Bibliography of the Works of Sir Isaac Newton.* 2d edition. Cambridge, 1907.

HENDEL, CHARLES W. JR. *Studies in the Philosophy of David Hume.* Princeton, 1925.

HORNE, GEORGE. *A Fair, Candid and Impartial Statement of the Case between Sir Isaac Newton and Mr. Hutchinson.* Oxford, 1753.

JONES, WILLIAM. *Memoirs of the Life, Studies, and Writings of the Right Reverend George Horne.* 2d edition. London, 1799.

KING, LORD PETER. *The Life and Letters of John Locke, with Extracts from His Journals and Common Place Books.* London, 1858.

LAMPRECHT, STERLING P. "Empiricism and Epistemology in David Hume," in *Studies in the History of Ideas.* Edited by the Department of Philosophy of Columbia University. 2 vol. New York, 1918-1925.

LANG, F. ALBERT. *Geschichte der Atomistik von Mittelalter bis Newton.* Hamburg and Leipzig, 1890.

LELAND, JOHN. *A View of the Principal Deistical Writers That Have Appeared in England in the Last and Present Century; with Observations upon Them; and Some Account of the Answers That Have Been Published against Them.* London, 1754.

LEVY-BRÜHL, L. "L'orientation de la pensée philosophique de David Hume," in *Revue de metaphysique et de morale,* XVII: 596-619. 1909.

MACH, ERNST. *The Science of Mechanics.* Translated by T. J. McCormack. 2d edition. Chicago, 1902.

MERZ, JOHN THEODORE. *A History of European Thought in the Nineteenth Century.* 4 vol. Edinburgh and London, 1902-1914.

MINTO (COUNTESS OF). *Life and Letters of the First Lord Minto* (Gilbert Elliot). London, 1874.

MONK, JAMES HENRY. *The Life of Richard Bentley.* 2d edition. 2 vol. London, 1833.

NICHOLS, JOHN. *Illustrations of the Literary History of the Eighteenth Century.* 6 vol. London, 1817-1831.

————. *Literary Anecdotes of the Eighteenth Century.* 9 vol. London, 1812-1815.

PATTISON, MARK. "Tendencies of Religious Thought in England from 1688 to 1750," in *Essays and Reviews.* 10th edition. London, 1862.

RAE, JOHN. *Life of Adam Smith.* London, 1895.

RIGAUD, S. P. *Correspondence of Scientific Men of the Seventeenth Century.* Oxford, 1841-1842.

————. *Historical Essay on the First Publication of Sir Isaac Newton's Principia.* Oxford, 1838.

SETH, ANDREW. *The Scottish Philosophy.* 2d edition. Edinburgh and London, 1890.

SMITH, NORMAN KEMP. "The Naturalism of Hume," *Mind,* XXX: 149-173, 335-347. 1905.

SNOW, A. J. *Matter and Gravity in Newton's Physical Philosophy.* Oxford University Press, 1926.

SPRAT, THOMAS. *History of the Royal Society.* London, 1667.

STEPHEN, LESLIE. *History of English Thought in the Eighteenth Century.* 3d edition. 2 vol. London, 1902.

TULLOCH, JOHN. *Rational Theology and Christian Philosophy in the Seventeenth Century.* 2 vol. London, 1872.

TYTLER, ALEXANDER F. (LORD WOODHOUSELEE). *Memoirs of the Life and Writings of the Honorable Henry Home of Kames.* Edinburgh, 1807.

WATTS, ISAAC. *Philosophical Essays on Various Subjects.* London, 1733.

WHEWELL, WILLIAM. *History of the Inductive Sciences.* 2d edition. 3 vol. London, 1847.

WOODBRIDGE, FREDERICK J. E. "Berkeley's Realism," in *Studies in the History of Ideas.* Edited by the Department of Philosophy of Columbia University. 2 vol. New York, 1918-1925.

WORDSWORTH, CHRISTOPHER. *Scholae Academicae. Some Account of the Studies at the English Universities in the Eighteenth Centuries.* Cambridge, 1877.

YOUNG, EDWARD. *Night Thoughts on Life, Death, and Immortality.* London, 1744.

ZIELINSKI, TH. *Cicero im Wandel der Jahrhunderte.* 3d edition. Leipzig, 1912.

PART II

PRIMARY SOURCES

(Works mentioned in Part I are not repeated.)

BENTHAM, JEREMY. *Works.* 11 vol. Edinburgh, 1843-1859.

BOLINGBROKE, LORD (HENRY SAINT-JOHN). *Works.* 5 vol. London, 1754-1798.

GROTIUS, HUGO. *Of the Law of War and Peace.* Translated by William Evats. London, 1682.

HOBBES, THOMAS. *English Works.* Edited by Sir William Molesworth. 11 vol. London, 1839-1845.

HUTCHESON, FRANCIS. *An Inquiry into the Original of Our Ideas of Beauty and Virtue in Two Treatises, in Which the Principles of the Late Earl of Shaftesbury Are Explained and Defended against the Author of the Fable of the Bees.* 2d edition. London, 1726.

————. *A Short Introduction to Moral Philosophy, Containing the Elements of Ethics and the Law of Nature.* Translated from the Latin. Glasgow, 1747.

————. *A System of Moral Philosophy.* "Life," by William Leechman prefixed. Glasgow, 1765.

PUFENDORFF, SAMUEL. *Of the Law of Nature and Nations.* Translated by Basil Kennett and others. 2d edition. Oxford, 1710.

————. *The Whole Duty of Man According to the Law of Nature.* Translated by A. Tooke. London, 1716.

SHAFTESBURY, LORD (ANTHONY ASHLEY COOPER). *Characteristics of Manners, Opinions, Times, etc.* Edited, with an introduction, by John Robertson. 3 vol. London, 1900.

WOLLASTON, WILLIAM. *Religion of Nature Delineated.* London, 1724.

SECONDARY WORKS

ANDREWS, ALEXANDER. *History of British Journalism.* London, 1859.

ATGER, FREDERICK. *Histoire des doctrines du contrat social.* Alcan, 1906.

Cambridge History of English Literature. Vol. IX, chap. vii, "Bolingbroke," by A. W. Ward; Vol. x, chap. xii, "Historians," by William Hunt; Vol. XVII, "Political Literature" (1755-1775, by C. W. Previté-Orton.

COLLINS, CHURTON. *Bolingbroke, an Historical Study and Voltaire in England.* London, 1886.
COOKE, GEORGE W. *Memoirs of Lord Bolingbroke.* 2 vol. London, 1835.
DAVIDSON, WILLIAM L. *Political Thought from Bentham to J. S. Mill.* London, 1916.
DUNNING, WILLIAM. *History of Political Theories from Luther to Montesquieu.* New York, 1920.
FIGGIS, J. N. *The Theory of the Divine Right of Kings.* Cambridge, 1896.
HALLAM, HENRY. *The Constitutional History of England.* 2 vol. New York, 1897.
HOLLAND, LORD (CHARLES FOX). *Memoirs of the Whig Party during My Time.* Edited by Henry Edward, Lord Holland. London, 1852-1854.
LASKI, HAROLD J. *Political Thought in England from Locke to Bentham.* New York, 1920.
LECKY, WILLIAM E. H. *History of England in the Eighteenth Century.* 8 vol. London, 1878-1890.
MACAULAY, THOMAS B. *Critical, Historical, and Miscellaneous Essays.* 6 vol. in 3. New York, 1860.
MORLEY, JOHN. *Burke.* London and New York, 1904.
———. *Walpole.* London and New York, 1890.
POLLARD, A. F. *Factors in Modern History.* London, 1919.
POLLOCK, SIR FREDERICK. *An Introduction to the History of the Science of Politics.* Macmillan, 1897.
SIDGWICK, HENRY. *Outlines of the History of Ethics.* 5th edition. Macmillan, 1922.
SINCLAIR, G. A. "Scotch Periodicals of the Eighteenth Century," in *Scottish Historical Review,* Vol. II (1905).
STEPHEN, LESLIE. *The English Utilitarians.* 3 vol. London, 1900.
THACKERAY, FRANCIS. *A History of the Right Honorable William Pitt.* London, 1827.
VON RUVILLE, ALBERT. *William Pitt, Earl of Chatham.* London and New York, 1907.

EIGHTEENTH CENTURY PERIODICALS CONSULTED

Craftsman (the organ of Bolingbroke). 1728-1738.
Critical Review (Smollet). 1756.
Fog's Weekly (Tory). 1734-1736.
London Journal (organ of Walpole). 1729-1735.
London Magazine. 1732-1758.
Monthly Review. 1755-1756.
Thistle (Edinburgh). (Largely a reprint of the *Craftsman*). 1734-1736.

B1498
.K97
1930

69127

ST. OLAF COLLEGE
B1498 .K97 1930
Kuypers, Ma[illegible] Studies in the eighte[illegible]th centur
3 0111 00099 1249

T3-AFM-978